H3C S5120-EI Series Ethernet Switches

Installation Manual

Hangzhou H3C Technologies Co., Ltd.
http://www.h3c.com

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Environmental Protection

This product has been designed to comply with the environmental protection requirements. The storage, use, and disposal of this product must meet the applicable national laws and regulations.

Preface

H3C S5120-EI Series Ethernet Switches Installation Manual describes the appearance, installation, power-on, maintenance, and troubleshooting of the H3C S5120-EI series Ethernet switches.

This preface includes:

- Audience
- Conventions
- About the H3C S5120-EI Documentation Set
- Obtaining Documentation
- Technical Support
- Documentation Feedback

Audience

This documentation is intended for:

- Network planners
- Field technical support and servicing engineers
- Network administrators working with the S5120-EI series

Conventions

This section describes the conventions used in this documentation set.

GUI conventions

Convention	Description
Boldface	Window names, button names, field names, and menu items are in Boldface. For example, the **New User** window appears; click **OK**.
>	Multi-level menus are separated by angle brackets. For example, **File** > **Create** > **Folder**.

Symbols

Convention	Description
Caution	Means reader be careful. Improper operation may cause data loss or damage to equipment.
Note	Means a complementary description.

About the H3C S5120-EI Documentation Set

The H3C S5120-EI documentation set includes:

Category	Documents	Purposes
Product description and specifications	Marketing brochures	Describe product specifications and benefits.
	Technology white papers	Provide an in-depth description of software features and technologies.
	RPS User Manual	Describes the appearances, features, and specifications of the RPS units available for the products.
	RPS Ordering Information for H3C Low-End Ethernet Switches	Provides the RPS and switch compatibility matrix and RPS cable specifications.
	H3C Low End Series Ethernet Switches Pluggable Modules Manual	Describes the models, appearances, and specifications of the pluggable modules available for the products.
	Interface Card User Manual	Describes the appearance and specifications of the interface card.
Hardware installation	S5120-EI Series Ethernet Switches Installation Manual	Provides a complete guide to hardware installation and hardware specifications. Provides regulatory information and the safety instructions that must be followed during installation.
	Pluggable SFP[SFP+][XFP] Transceiver Modules Installation Guide	Guides you through installing SFP/SFP+/XFP transceiver modules.
	Interface Card User Manual	Describes how to install the interface card.
Software configuration	Configuration guides	Describe software features and configuration procedures.
	Command references	Provide a quick reference to all available commands.
Operations and maintenance	H3C Series Ethernet Switches Login Password Recovery Manual	Tells how to find the lost password or recover the password when the login password is lost.
	Release notes	Provide information about the product release, including the version history, hardware and software compatibility matrix, version upgrade information, technical support information, and software upgrading.

Obtaining Documentation

You can access the most up-to-date H3C product documentation on the World Wide Web at http://www.h3c.com.

Click the links on the top navigation bar to obtain different categories of product documentation:

[Technical Support & Documents > Technical Documents] – Provides hardware installation, software upgrading, and software feature configuration and maintenance documentation.

[Products & Solutions] – Provides information about products and technologies, as well as solutions.

[Technical Support & Documents > Software Download] – Provides the documentation released with the software version.

Technical Support

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Documentation Feedback

You can e-mail your comments about product documentation to info@h3c.com.

We appreciate your comments.

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1 Product Overview

H3C S5120-EI Series Ethernet switches (hereinafter referred to as S5120-EI series) are Gigabit Ethernet switching products developed by H3C. The S5120-EI series are designed to operate at the convergence or access layer of enterprise networks and metropolitan area networks (MANs). Supporting IPv4/IPv6 dual stack, the S5120-EI series provide abundant service features.

The S5120-EI series support the H3C-specific cluster management function, which facilitates your network management. The S5120-EI C series switches support the Intelligent Resilient Framework (IRF) technology. You can connect multiple S5120-EI C switches through 10 GE ports to form a logical entity, thus to establish a new intelligent network with high reliability, expandability and manageability.

Product Models and Specifications

The S5120-EI series include the following six models:

- S5120-28C-EI
- S5120-52C-EI
- S5120-24P-EI
- S5120-48P-EI
- S5120-28C-PWR-EI (including the PoE and PoE+ models)
- S5120-52C-PWR-EI (including the PoE and PoE+ models)

Each model has the specifications as shown in Table 1-1 and Table 1-2.

Table 1-1 Specifications of the S5120-EI series (1)

Item	S5120-28C-EI	S5120-24P-EI	S5120-52C-EI	S5120-48P-EI
Physical dimensions (H × W × D)	43.6 × 440 × 300 mm (1.72 × 17.32 × 11.81 in.)		43.6 × 440 × 300 mm (1.72 × 17.32 × 11.81 in.)	
Weight	<4.5 kg (9.92 lb)		<5.0 kg (11.02 lb)	
Management port	One console port, on the front panel			
GE ports (on the front panel)	24 × 10/100/1000Base-T auto-sensing Ethernet port 4 × 1000Base-X SFP port		48 ×10/100/1000Base-T auto-sensing Ethernet port 4 × 1000Base-X SFP port	
	Each 1000 Base-X SFP port and the corresponding auto-sensing 10/100/1000Base-T Ethernet port form a Combo port. For each Combo port, either the SFP port or the corresponding 10/100/1000Base-T Ethernet port can be used at a time. For the combo port mapping relationship, see Table 1-6.			
Interface cards supported (optional, on the rear panel)	S5120-24P-EI and S5120-48P-EI do not support any interface cards; S5120-28C-EI and S5120-52C-EI support two interface cards respectively, which can be: • Short-haul dual-port 10GE CX4 interface card (LSPM1CX2P) • Dual-port 10 GE SFP+ interface card (LSPM2SP2P) • Dual-port 10 GE XFP interface card (LSPM1XP2P) • One-port 10 GE XFP interface card (LSPM1XP1P) • Dual-port GE SFP interface card (LSPM2GP2P)			

Item		S5120-28C-EI	S5120-24P-EI	S5120-52C-EI	S5120-48P-EI
Power socket types and quantity		1 AC power socket and 1 RPS power socket You can select AC power input, RPS power input, or both (with the AC power input and the RPS power input work as backup for each other).			
Input voltage	AC input	Rated voltage range: 100 VAC to 240 VAC, 50 Hz or 60 Hz Input voltage range: 90 VAC to 264 VAC, 47 Hz to 63 Hz			
	RPS input	Rated voltage range: 10.8 VDC to 13.2 VDC Use the external RPS power supply units recommended by H3C only. For relevant information, see *RPS Ordering Guide for H3C Low-End Series Ethernet Switches.*			
Power consumption (static)		36 W	35 W	55 W	54 W
Power consumption (full load)		103W	62W	145W	110W
Cooling system		Four fans for heat dissipation		Four fans for heat dissipation	
Operating temperature		0°C to 45°C (32°F to 113°F)			
Relative humidity (noncondensing)		10% to 90%			

Table 1-2 Specifications of the S5120-EI series (2)

Item	S5120-28C-PWR-EI		S5120-52C-PWR-EI	
	PoE model	PoE+ model	PoE model	PoE+ model
Physical dimensions (H × W × D)	43.6 × 440 × 420 mm (1.72 × 17.32 × 16.54 in.)		43.6 × 440 × 420 mm (1.72 × 17.32 × 16.54 in.)	
Weight	<7.0 kg (15.43 lb)	<7.0 kg (15.43 lb)	<7.5 kg (16.53 lb)	<7.5 kg (16.53 lb)
Management port	One console port, on the front panel			
GE ports (on the front panel)	24 × 10/100/1000Base-T auto-sensing Ethernet port (Supports PoE) 4 × 1000Base-X SFP port		48 ×10/100/1000Base-T auto-sensing Ethernet port (Supports PoE) 4 × 1000Base-X SFP port	
	Each 1000 Base-X SFP port and the corresponding auto-sensing 10/100/1000Base-T Ethernet port form a Combo port. For each Combo port, either the SFP port or the corresponding 10/100/1000Base-T Ethernet port can be used at a time. For the combo port mapping relationship, see Table 1-6.			
Interface cards supported (optional, on the rear panel)	Support two interface cards respectively, which can be: • Short-haul dual-port 10GE CX4 interface card (LSPM1CX2P) • Dual-port 10 GE SFP+ interface card (LSPM2SP2P) • Dual-port 10 GE XFP interface card (LSPM1XP2P) • One-port 10 GE XFP interface card (LSPM1XP1P) • Dual-port GE SFP interface card (LSPM2GP2P)			
Power socket types and quantity	1 AC power socket and 1 RPS power socket You can select AC power input, RPS power input, or both (with the AC power input and the RPS power input work as backup for each other).			

Item		S5120-28C-PWR-EI		S5120-52C-PWR-EI	
		PoE model	PoE+ model	PoE model	PoE+ model
Input voltage	AC input	Rated voltage range: 100 VAC to 240 VAC, 50 Hz or 60 Hz Input voltage range: 90 VAC to 264 VAC, 47 Hz to 63 Hz			
	RPS input	Rated voltage range: –52 VDC to –55 VDC Use the external RPS power supply units recommended by H3C only. For relevant information, see *RPS Ordering Guide for H3C Low-End Series Ethernet Switches.*			
Maximum PoE power per port		15.4 W	30 W	15.4 W	30 W
Total PoE power		370 W	370 W	AC power supply: 370 W RPS power supply: 740 W (The total PoE power of ports numbered 1 through 24 is 370 W, and that of ports numbered 25 through 48 is 370 W.)	
Power consumption (static)		62 W	62W	90 W	90W
Power consumption (full load, including PoE power)	AC input	210W + 370 W	215W + 370 W	276W + 370 W	281W + 370 W
	RPS input	116W + 370 W	121W + 370 W	176W + 740 W	181W + 740 W
Cooling system		Six fans for heat dissipation		Six fans for heat dissipation	
Operating temperature		0°C to 45°C (32°F to 113°F)			
Relative humidity (noncondensing)		10% to 90%			

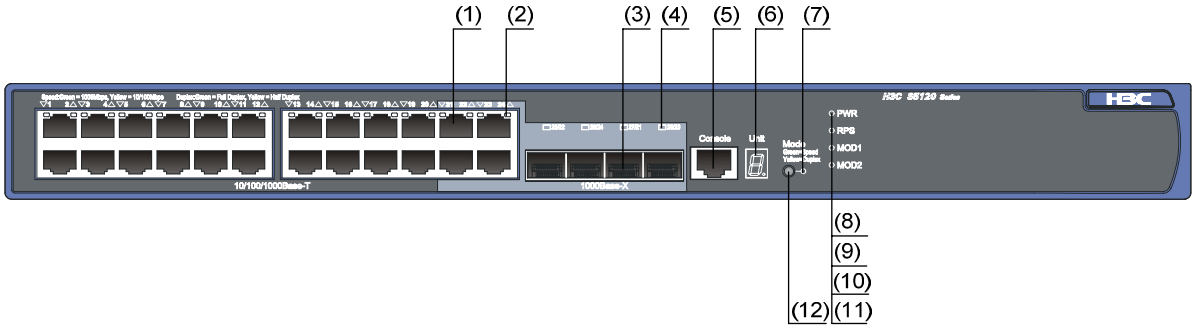
Caution

- Only the recommended RPS can be used for the RPS receptacles on S5120-EI switches. The –48 VDC in the equipment room cannot be used directly. Otherwise, the device may be damaged.
- For more information about the RPS power supply units, see the RPS user manuals and *RPS Ordering Guide for H3C Low-End Series Ethernet Switches.*

Front and Rear Panels

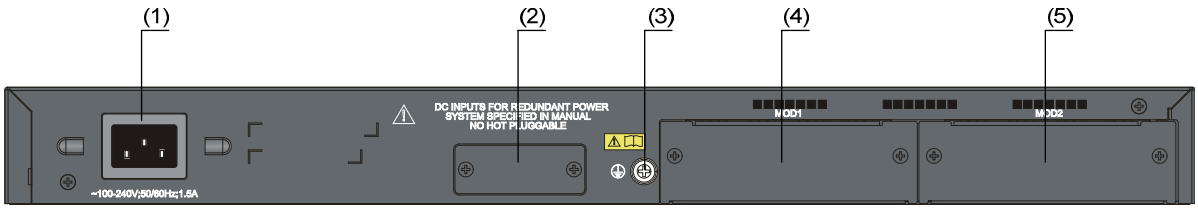
S5120-28C-EI

Figure 1-1 Front panel of the S5120-28C-EI Ethernet switch



(1) 10/100/1000 Base-T auto-sensing Ethernet port	
(2) 10/100/1000 Base-T auto-sensing Ethernet port status LED	
(3) 1000 Base-X SFP port	(4) 1000Base-X SFP port status LED
(5) Console port	(6) Seven-segment LED
(7) Port mode LED (Mode)	(8) System status LED (PWR)
(9) RPS status LED (RPS)	(10) Interface card 1 status LED (MOD1)
(11) Interface card 2 status LED (MOD2)	(12) Port status LED mode switching button

Figure 1-2 Rear panel of the S5120-28C-EI Ethernet switch



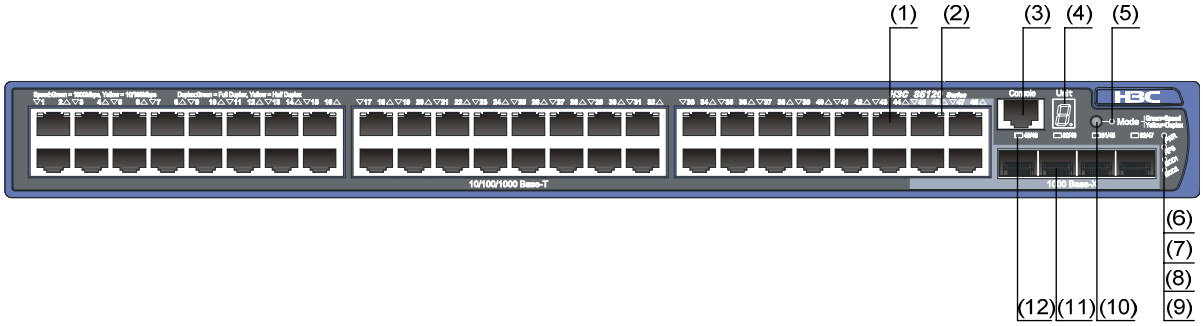
(1) AC power input	(2) RPS power input (shipped with a protective cover)
(3) Grounding screw	(4) Interface card slot 1 (MOD1)
(5) Interface card slot 2 (MOD2)	

Note

The S5120-28C-EI provides two interface card slots on its rear panel. Each slot is installed with a filler panel when the switch is shipped. You can select one or two interface cards for your switch as needed. See Optional Interface Cards and Interfaces on page 1-17 for the interface card models supported by the S5120-EI series, and see Installing an Interface Card on page 3-17 for the installation of interface cards.

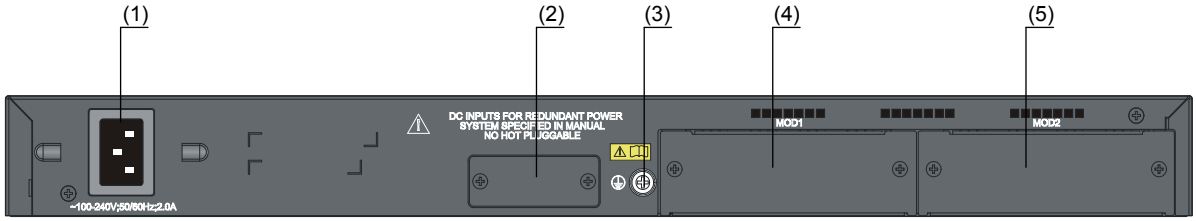
S5120-52C-EI

Figure 1-3 Front panel of the S5120-52C-EI Ethernet switch



(1) 10/100/1000 Base-T auto-sensing Ethernet port	
(2) 10/100/1000 Base-T auto-sensing Ethernet port status LED	
(3) Console port	(4) Seven-segment LED
(5) Port mode LED (Mode)	(6) System status LED (PWR)
(7) RPS status LED (RPS)	(8) Interface card 1 status LED (MOD1)
(9) Interface card 2 status LED (MOD2)	(10) Port status LED mode switching button
(11) 1000 Base-X SFP port	(12) 1000Base-X SFP port status LED

Figure 1-4 Rear panel of the S5120-52C-EI Ethernet switch



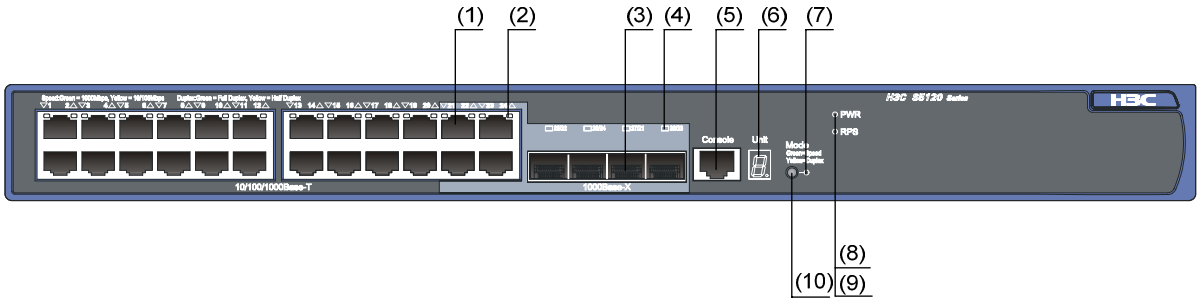
(1) AC power input	(2) RPS power input (shipped with a protective cover)
(3) Grounding screw	(4) Interface card slot 1 (MOD1)
(5) Interface card slot 2 (MOD2)	

Note

The S5120-52C-EI provides two interface card slots on its rear panel. Each slot is installed with a filler panel when the switch is shipped. You can select one or two interface cards for your switch as needed. See Optional Interface Cards and Interfaces on page 1-17 for the interface card models supported by the S5120-EI series, and see Installing an Interface Card on page 3-17 for the installation of interface cards.

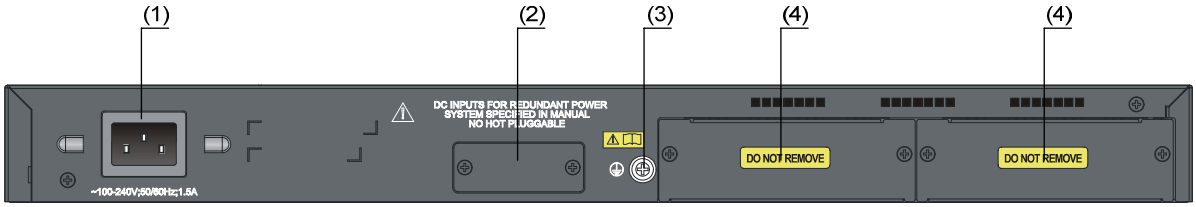
S5120-24P-EI

Figure 1-5 Front panel of the S5120-24P-EI Ethernet switch



(1) 10/100/1000 Base-T auto-sensing Ethernet port	
(2) 10/100/1000 Base-T auto-sensing Ethernet port status LED	
(3) 1000 Base-X SFP port	(4) 1000Base-X SFP port status LED
(5) Console port	(6) Seven-segment LED
(7) Port mode LED (Mode)	(8) System status LED (PWR)
(9) RPS status LED (RPS)	(10) Port status LED mode switching button

Figure 1-6 Rear panel of the S5120-24P-EI Ethernet switch



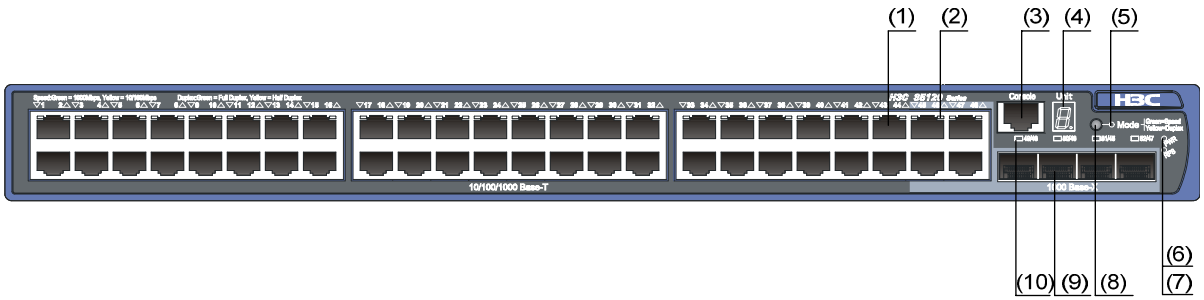
(1) AC power input	(2) RPS power input (shipped with a protective cover)
(3) Grounding screw	(4) “DO NOT REMOVE” label

Caution

The S5120-24P-EI does not support any interface cards.

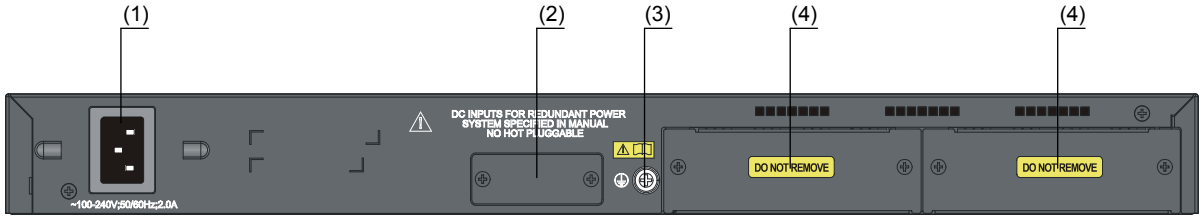
S5120-48P-EI

Figure 1-7 Front panel of the S5120-48P-EI Ethernet switch



(1) 10/100/1000 Base-T auto-sensing Ethernet port	
(2) 10/100/1000 Base-T auto-sensing Ethernet port status LED	
(3) Console port	(4) Seven-segment LED
(5) Port mode LED (Mode)	(6) System status LED (PWR)
(7) RPS status LED (RPS)	(8) Port status LED mode switching button
(9) 1000 Base-X SFP port	(10) 1000Base-X SFP port status LED

Figure 1-8 Rear panel of the S5120-48P-EI Ethernet switch



(1) AC power input	(2) RPS power input (shipped with a protective cover)
(3) Grounding screw	(4) “DO NOT REMOVE” label

Caution

The S5120-48P-EI does not support any interface cards.

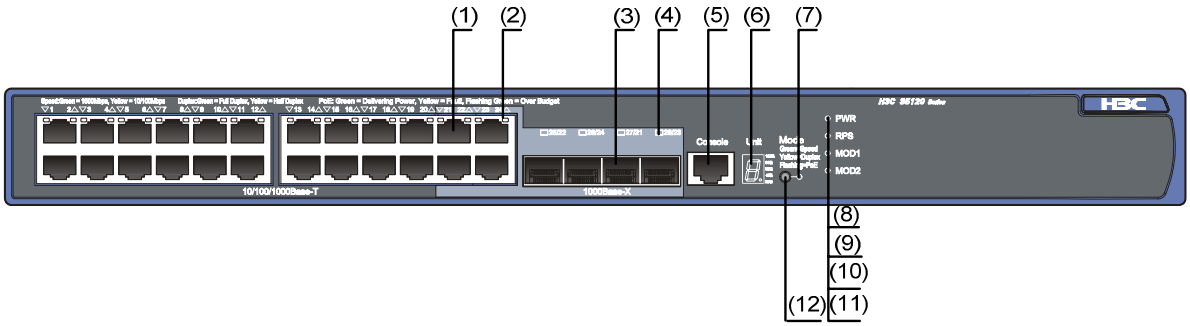
S5120-28C-PWR-EI

The S5120-28C-PWR-EI includes two models: PoE and PoE+.

- The front panels of the PoE and PoE+ models are the same in appearance. See Figure 1-9.
- The PoE+ model has a PoE+ label on its rear panel, as shown in Figure 1-10. The maximum PoE power per port is 30 W.
- The PoE model has no PoE+ label on its rear panel, as shown in Figure 1-11. The maximum PoE power per port is 15.4 W.

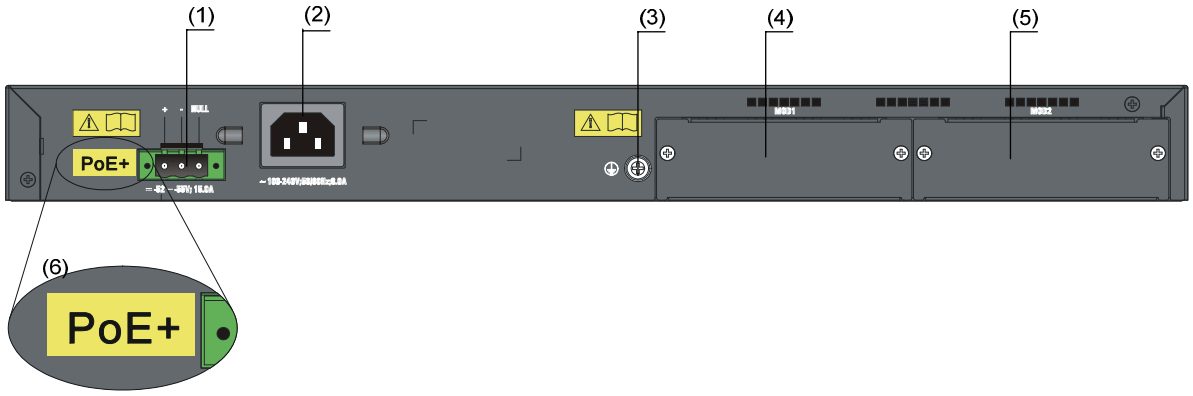
For more information about the PoE power supply, see Table 1-2.

Figure 1-9 Front panel of the S5120-28C-PWR-EI Ethernet switch



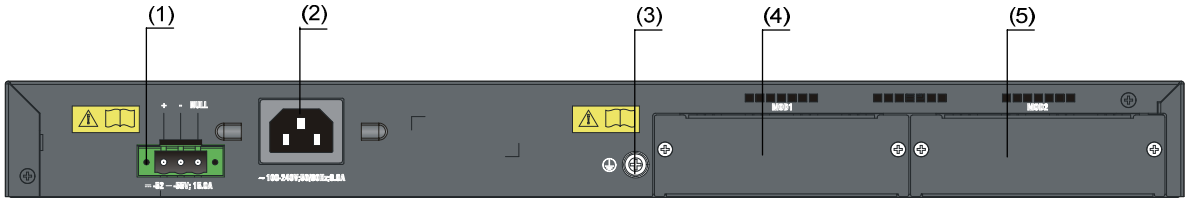
(1) 10/100/1000 Base-T auto-sensing Ethernet port	
(2) 10/100/1000 Base-T auto-sensing Ethernet port status LED	
(3) 1000 Base-X SFP port	(4) 1000Base-X SFP port status LED
(5) Console port	(6) Seven-segment LED
(7) Port mode LED (Mode)	(8) System status LED (PWR)
(9) RPS status LED (RPS)	(10) Interface card 1 status LED (MOD1)
(11) Interface card 2 status LED (MOD2)	(12) Port status LED mode switching button

Figure 1-10 Rear panel of the S5120-28C-PWR-EI Ethernet switch (PoE+ model)



(1) RPS power input	(2) AC power input
(3) Grounding screw	(4) Interface card slot 1 (MOD1)
(5) Interface card slot 2 (MOD2)	(6) PoE+ label

Figure 1-11 Rear panel of the S5120-28C-PWR-EI Ethernet switch (PoE model)



(1) RPS power input	(2) AC power input
(3) Grounding screw	(4) Interface card slot 1 (MOD1)
(5) Interface card slot 2 (MOD2)	

Note

The S5120-28C-PWR-EI provides two interface card slots on its rear panel. Each slot is installed with a filler panel when the switch is shipped. You can select one or two interface cards for your switch as needed. See Optional Interface Cards and Interfaces on page 1-17 for the interface card models supported by the S5120-EI series, and see Installing an Interface Card on page 3-17 for the installation of interface cards.

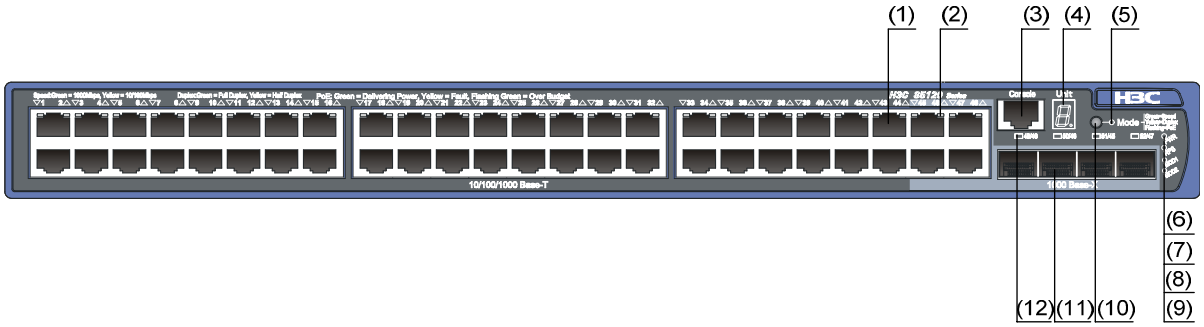
S5120-52C-PWR-EI

The S5120-52C-PWR-EI includes two models: PoE and PoE+.

- The front panels of the PoE and PoE+ models are the same in appearance. See Figure 1-12.
- The PoE+ model has a PoE+ label on its rear panel, as shown in Figure 1-13. The maximum PoE power per port is 30 W.
- The PoE model has no PoE+ label on its rear panel, as shown in Figure 1-14. The maximum PoE power per port is 15.4 W.

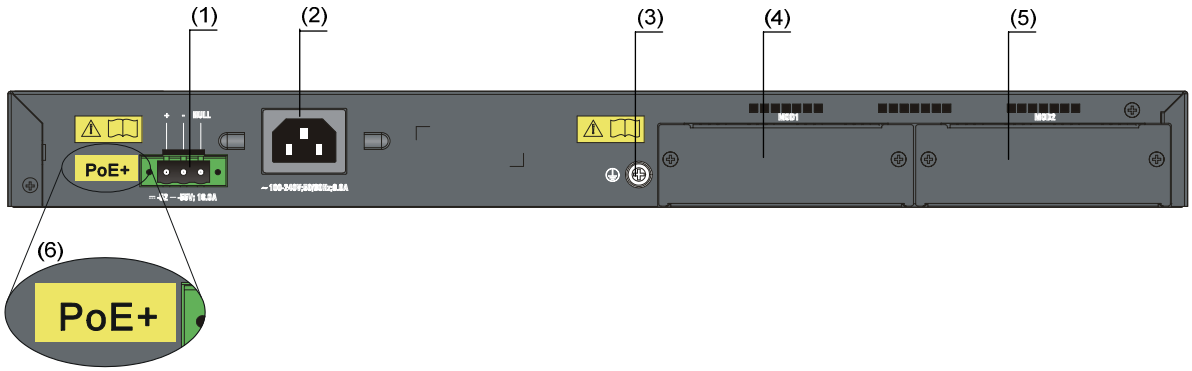
For more information about the PoE power supply, see Table 1-2.

Figure 1-12 Front panel of the S5120-52C-PWR-EI Ethernet switch



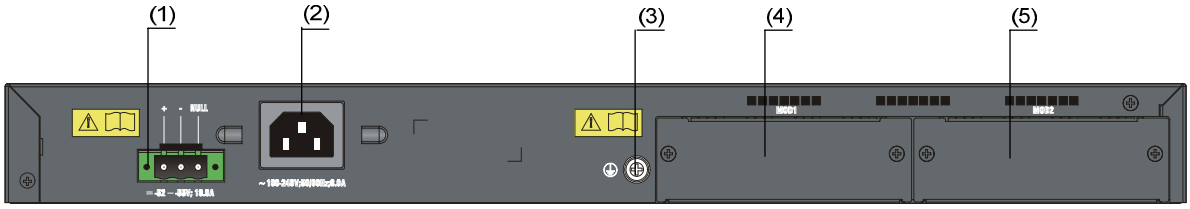
(1) 10/100/1000 Base-T auto-sensing Ethernet port	
(2) 10/100/1000 Base-T auto-sensing Ethernet port status LED	
(3) Console port	(4) Seven-segment LED
(5) Port mode LED (Mode)	(6) System status LED (PWR)
(7) RPS status LED (RPS)	(8) Interface card 1 status LED (MOD1)
(9) Interface card 2 status LED (MOD2)	(10) Port status LED mode switching button
(11) 1000 Base-X SFP port	(12) 1000Base-X SFP port status LED

Figure 1-13 Rear panel of the S5120-52C-PWR-EI Ethernet switch (PoE+ model)



(1) RPS power input	(2) AC power input
(3) Grounding screw	(4) Interface card slot 1 (MOD1)
(5) Interface card slot 2 (MOD2)	(6) PoE+ label

Figure 1-14 Rear panel of the S5120-52C-PWR-EI Ethernet switch (PoE model)



(1) RPS power input	(2) AC power input
(3) Grounding screw	(4) Interface card slot 1 (MOD1)
(5) Interface card slot 2 (MOD2)	

Note

The S5120-52C-PWR-EI provides two interface card slots on its rear panel. Each slot is installed with a filler panel when the switch is shipped. You can select one or two interface cards for your switch as needed. See Optional Interface Cards and Interfaces on page 1-17 for the interface card models supported by the S5120-EI series, and see Installing an Interface Card on page 3-17 for the installation of interface cards.

Ports

Console Port

Each S5120-EI series provides one console port on the front panel. Table 1-3 describes the console port specifications.

Table 1-3 Console port specifications

Item	Specification
Connector type	RJ-45

Item	Specification
Compliant standard	Asynchronous EIA/TIA-232
Transmission baud rate	9600 bps to 115200 bps (defaulting to 9600 bps)
Service	• It can be connected to an ASCII terminal. • It can be connected to a serial port of a local or remote (through a pair of modems) PC running terminal emulation program.

10/100/1000Base-T Ethernet Port

Table 1-4 10/100/1000Base-T Ethernet port specifications

Item	Specification
Connector type	RJ-45
Interface standard	• 10 Mbps, full duplex • 100 Mbps, full duplex • 1000 Mbps, full duplex • MDI/MDI-X, auto-sensing
Max transmission distance	100 m (328.08 ft.)
Transmission medium	Category-5 or higher twisted pair cable
Standard	IEEE 802.3i, 802.3u, 802.3ab

1000Base-X SFP Port

You can connect two SFP ports remotely through external SFP transceivers and an optical fiber. All SFP transceivers are hot swappable and optional. Therefore, networking is more flexible.

You can select the SFP transceivers described in Table 1-5.

Table 1-5 Transceivers supported by the S5120-EI series 1000Base-X SFP ports

Transceiver	Central wavelength	Connector	Fiber/Cable	Max transmission distance
SFP-GE-SX-MM850-A	850 nm	LC	50/125 μm multimode optical fiber	550 m (1804.46 ft)
			62.5/125 μm multimode optical fiber	275 m (902.23 ft)
SFP-GE-LX-SM1310-A	1310 nm	LC	9/125 μm single mode optical fiber	10 km (6.21 mi)
SFP-GE-LH40-SM1310				40 km (24.86 mi)
SFP-GE-LH40-SM1550	1550 nm	LC	9/125 μm single mode optical fiber	40 km (24.86 mi)
SFP-GE-LH70-SM1550				70 km (43.50 mi)

Transceiver		Central wavelength	Connector	Fiber/Cable	Max transmission distance
SFP-GE-LX-SM1310-BIDI	Note that these two transceivers should be used in pairs.	TX: 1310 nm RX: 1490 nm	LC	9/125 μm single mode optical fiber	10 km (6.21 mi)
SFP-GE-LX-SM1490-BIDI		TX: 1490 nm RX: 1310 nm			
SFP-GE-T		—	RJ-45	Twisted pair cable	100 m (328.08 ft)

Note

- You are recommended to use SFP transceivers of H3C on the S5120-EI series.
- The S5120-EI series Ethernet switches support GE SFP transceivers only.
- The types of SFP transceivers may update with time. For information about transceivers, contact H3C technical support or marketing staff.
- For the models and specifications of each kind of transceivers, see *H3C Low End Series Ethernet Switches Pluggable Modules Manual*.
- For how to install and remove an SFP transceiver, see *H3C Pluggable SFP/SFP+/XFP Transceiver Modules Installation Guide*.

Combo Port

Each SFP port and the corresponding 10/100/1000Base-T Ethernet port form a Combo port. For each Combo port, either the SFP port or the corresponding 10/100/1000Base-T Ethernet port can be used at a time. For the combo port mapping relationship, see Table 1-6.

Table 1-6 Combo port mapping relationship

Model	SFP port	10/100/1000Base-T Ethernet port
S5120-28C-EI S5120-28C-PWR-EI S5120-24P-EI	GigabitEthernet1/0/25	GigabitEthernet1/0/22
	GigabitEthernet1/0/26	GigabitEthernet1/0/24
	GigabitEthernet1/0/27	GigabitEthernet1/0/21
	GigabitEthernet1/0/28	GigabitEthernet1/0/23
S5120-52C-EI S5120-52C-PWR-EI S5120-48P-EI	GigabitEthernet1/0/49	GigabitEthernet1/0/46
	GigabitEthernet1/0/50	GigabitEthernet1/0/48
	GigabitEthernet1/0/51	GigabitEthernet1/0/45
	GigabitEthernet1/0/52	GigabitEthernet1/0/47

Note

The SFP port and its corresponding 10/100/1000Base-T autosensing Ethernet port cannot be used together at the same time. For more information, see the *Ethernet Interface Configuration* in the *H3C S5120-EI Series Ethernet Switches Layer 2 - LAN Switching Configuration Guide*.

LEDs

Table 1-7 LEDs

LED	Device support
System Status LED	All series
RPS Status LED	All series
Port Mode LED	All series
Seven-Segment LED	All series
10/100/1000Base-T Auto-Sensing Ethernet Port Status LED	All series
1000Base-X SFP Port Status LED	All series
Interface Card Status LED	S5120-28C-EI, S5120-52C-EI, S5120-28C-PWR-EI and S5120-52C-PWR-EI

System Status LED

The system status LED helps you determine the working status of the switch. See Table 1-8 for relevant information.

Table 1-8 System status LED description

LED	Status	Description
PWR	Steady green	The switch is started normally.
	Flashing green (1 Hz)	The system is performing power-on self test (POST).
	Steady red	POST failed.
	Flashing yellow (1 Hz)	POST on some ports failed.
	Off	The switch is powered off.

RPS Status LED

The RPS status LED helps you determine the working status of the RPS of the switch.

Table 1-9 RPS status LED (for S5120-28C-EI/S5120-52C-EI/S5120-24P-EI/S5120-48P-EI)

LED	Status	Description
RPS	Steady green	The AC input is normal, and the RPS is in the position or works normally.
	Steady yellow	The RPS input is normal, but the AC input fails or is not connected.
	Off	RPS is not connected.

Table 1-10 RPS status LED (for S5120-28C-PWR-EI/S5120-52C-PWR-EI)

LED	Status	Description
RPS	Steady green	The RPS input is normal, and the AC input works normally.
	Steady yellow	The RPS input is normal, but the AC input fails or is not connected.
	Off	The RPS input is abnormal.

Port Mode LED

The port mode LED on the S5120-EI series can display the working status of a port for you to obtain more device information. You can use the port mode switching button to change the status of the port mode LED.

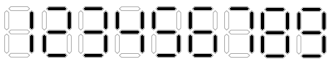
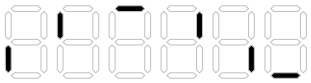
Table 1-11 Port mode LED description

LED	Status	Description
Mode	Steady green	Indicates port rate.
	Flashing green (1 Hz) (supported by S5120-28C-PWR-EI/S5120-52C-PWR-EI only)	Indicates port PoE power supply.
	Steady yellow	Indicates port duplex mode.

Seven-Segment LED

The seven-segment LED and the system status LED together indicate the operating status of the device. For relevant information, see Table 1-12.

Table 1-12 Seven-segment LED description (1)

LED	Status		Description
	System status LED (PWR)	Seven-segment LED	
Unit	Flashing green	The LED displays the specific numbers one by one. 	POST running. The LED displays the POST test ID.
	Flashing red	The LED flashes the specific numbers. 	POST failed. The LED flashes the POST test ID of the failed test.
	Flashing green	A bar rotates clockwise around the LED. 	Software loading
	Steady red	The LED flashes **F**. 	Fan failure
	Steady red	The LED flashes **t**. 	Over-temperature alarm
	Steady green	The LED displays **C**. 	The current switch is the command switch in the cluster.
		The LED displays **S**. 	The current switch is a member switch in the cluster.
		The LED displays **c**. 	The current switch is a candidate switch in the cluster.
		The LED displays the specific numbers. (The value range varies with software versions used on the device)	The member ID of the current switch. S5120-24P-EI and S5120-48P-EI do not support IRF.

The seven-segment LED, the system status LED, and the port mode LED on the S5120-28C-PWR-EI or S5120-52C-PWR-EI that supports PoE can display the PoE power consumption percentage of the switch. For relevant information, see Table 1-13.

Table 1-13 Seven-segment LED description (2)

LED	LED status			Description
	Port mode LED	System status LED	Seven-segment LED	
Unit	Flashing green (1 Hz) (PoE mode)	Steady green	The LED displays the specific signs.	For example, when the LED displays the sign, it indicates that the PoE power currently provided by the switch occupies 0 to 20% of the total PoE power that the switch can provide.

10/100/1000Base-T Auto-Sensing Ethernet Port Status LED

The port mode LED and the 10/100/1000Base-T auto-sensing Ethernet port status LED together indicate the port operation status. See Table 1-14 for relevant information.

Table 1-14 10/100/1000Base-T auto-sensing Ethernet port LEDs description

Status		Description
Port mode LED	Ethernet port status LED	
Steady green (rate mode)	Steady green	The port operates at a rate of 1000 Mbps; the LED is fast flashing when data is being sent and/or received on the port.
	Steady yellow	The port operates at a rate of 10/100 Mbps; the LED is fast flashing when data is being sent and/or received on the port.
	Flashing yellow (3 Hz)	POST failed on the port.
	Off	The port is not up.
Flashing green (1 Hz) (PoE mode, supported by S5120-28C-PWR-EI/ S5120-52C-PWR-EI only)	Steady green	PoE power supply is normal.
	Flashing green (1 Hz)	Power consumption of the device connected to the port exceeds the upper limit of the power supply consumption of the port, or the available power of the switch is not enough for power supply of the port.
	Steady yellow	PoE failure, and power supply failed. The devices attached to the port are not powered devices (PDs), so the port does not supply power.
	Flashing yellow (3 Hz)	POST failed on the port.
	Off	The port does not provide PoE power.
Steady yellow (duplex mode)	Steady green	The port operates in full-duplex mode; the LED is fast flashing when data is being sent and/or received on the port.
	Steady yellow	The port operates in half-duplex mode; the LED is fast flashing when data is being sent and/or received on the port.
	Flashing yellow (3 Hz)	POST failed on the port.
	Off	The port is not up.

1000Base-X SFP Port Status LED

The port mode LED and the 1000Base-X SFP port status LED together indicate the SFP port operation status. See Table 1-15 for relevant information.

Table 1-15 1000Base-X SFP port status LEDs description

Status		Description
Port mode LED	**Ethernet port status LED**	
Steady green (rate mode) or flashing green (1 Hz, PoE mode)	Steady green	The port operates at a rate of 1000 Mbps; the LED is fast flashing when data is being sent and/or received on the port.
	Flashing yellow (3 Hz)	POST failed on the port.
	Off	The port is not up.
Steady yellow (duplex mode)	Steady green	The port operates in full-duplex mode; the LED is fast flashing when data is being sent and/or received on the port.
	Flashing yellow (3 Hz)	POST failed on the port.
	Off	The port is not up.

Interface Card Status LED

Table 1-16 Interface card status LED description

Mark	Status	Description
MOD1 MOD2	Green	The interface card is in the slot and operates normally.
	Flashing yellow	The inserted interface card type is incorrect or the interface card fails.
	Off	No interface card is installed.

Optional Interface Cards and Interfaces

The S5120-EI series (excluding S5120-24P-EI and S5120-48P-EI) provide two interface card slots on the rear panel. You can select the interface cards in Table 1-17 as needed.

The S5120-E1 series support IRF, requiring physical connections between devices. The 10 GE ports of the supported interface cards support IRF, allowing you to connect the switches through these 10 GE ports for IRF implementation.

Table 1-17 Description of the supported interface cards

Model	Description	Interface quantity and type	Remarks
LSPM1CX2P	Short-haul Dual-Port 10 GE CX4 Interface Card	2 × 10 Gbps electrical ports	Suitable for short-distance connections by using CX4 power cables, and supporting IRF

Model	Description	Interface quantity and type	Remarks
LSPM2SP2P	Dual-Port 10 GE SFP+ Interface Card	2 × 10 Gbps SFP+ optical ports	Using SFP+ power cables for short-distance connections, and supporting IRF Using SFP+ optical transceivers and fibers for long-distance connections, and supporting IRF
LSPM1XP2P	Dual-Port 10 GE XFP Interface Card	2 × 10 Gbps XFP optical ports	Using XFP optical transceivers and fibers for long-distance connections, and supporting IRF
LSPM1XP1P	One-port 10 GE XFP Interface Card	1 × 10 Gbps XFP optical port	
LSPM2GP2P	Dual-port GE SFP Interface Card	2 × 1 Gbps SFP optical ports	Using SFP optical transceivers and fibers for long-distance connections Not supporting IRF

Short-haul Dual-Port 10 GE CX4 Interface Card

Figure 1-15 Short-haul dual-port 10 GE CX4 interface card

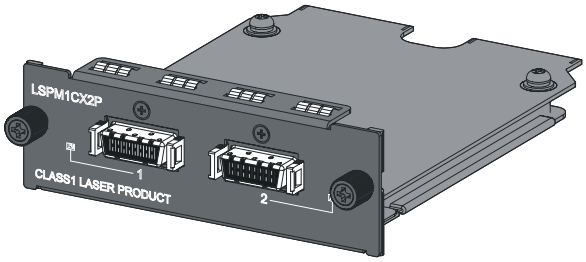
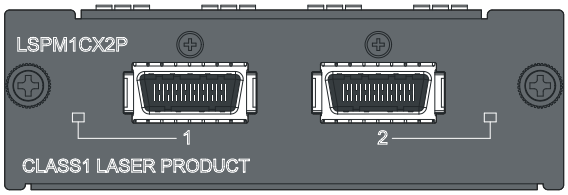


Figure 1-16 Front panel of short-haul dual-port 10 GE CX4 interface card



A short-haul dual-port 10 GE CX4 interface card provides two 10 Gbps electrical ports and supports CX4 electrical and protocol standards. Only H3C's CX4 power cables can be used for connecting the CX4 ports. A CX4 cable is hot swappable and its maximum transmission distance is 3 m (9.84 ft.), which is suitable for short-distance connections only. For how to install and remove a CX4 cable, see Installing Dedicated CX4/SFP+ Cable.

Table 1-18 CX4 cables supported by the short-haul dual-port 10 GE CX4 interface card

CX4 Cable	Connector type	Length
LSPM2STKA	4X Infiniband	0.5 m (19.69 in.)
LSPM2STKB		1 m (39.37 in.)
LSPM2STKC		3 m (118.11 in.)

Figure 1-17 CX4 cable

Dual-Port 10 GE SFP+ Interface Card

Figure 1-18 Dual-port 10 GE SFP+ interface card

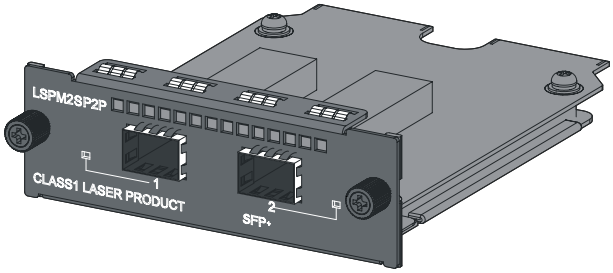
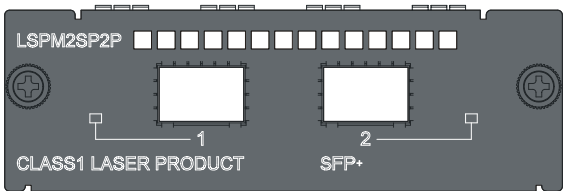


Figure 1-19 Front panel of dual-port 10 GE SFP+ interface card



A dual-port 10 GE SFP+ interface card provides two 10 Gbps SFP+ ports. You can insert an SFP+ transceiver into the port to connect it to another SFP+ port through an optical fiber, or an SFP+ cable provided by H3C. For the supported SFP+ transceivers and SFP+ cables, see Table 1-19.

Table 1-19 SFP+ transceivers and SFP+ cables supported by dual-port 10 GE SFP+ interface card

Transceiver/ Cable type	Transceiver/Cable	Central wavelength	Connector	Fiber	Max transmission distance
10 GE SFP+ transceiver	SFP-XG-SX-MM850-A	850 nm	LC	50/125 μm multimode optical fiber	300 m (984.25 ft.)
	SFP-XG-LX220-MM1310	1310 nm		62.5/125 μm multimode optical fiber	220 m (721.78 ft.)
	SFP-XG-LX-SM1310			9/125 μm single mode optical fiber	10 km (6.21 mi)
Short-haul 10 GE SFP+ cable	LSWM1STK	—	—	SFP+ cable	0.65 m (2.13 ft.)
	LSWM2STK				1.2 m (3.94 ft.)
	LSWM3STK				3 m (9.84 ft.)
	LSTM1STK				5 m (16.40 ft.)
	LSWM4STK				10 m (32.81 ft.)

Figure 1-20 SFP+ cable

Note

- You are recommended to use SFP+ transceivers and SFP+ cables of H3C on the S5120-EI series.
- The types of SFP+ transceivers and SFP+ cables may update with time. For information about transceivers, contact H3C technical support or marketing staff.
- For the models and specifications of each kind of SFP+ transceivers and SFP+ cables, see *H3C Low End Series Ethernet Switches Pluggable Modules Manual*.
- For how to install and remove an SFP+ transceiver or SFP+ cable, see *H3C Pluggable SFP/SFP+/XFP Transceiver Modules Installation Guide*.

Dual-Port 10 GE XFP Interface Card

Figure 1-21 Dual-port 10 GE XFP interface card

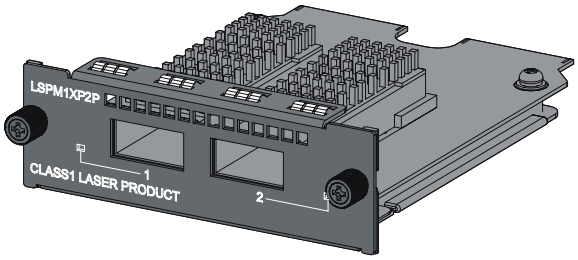
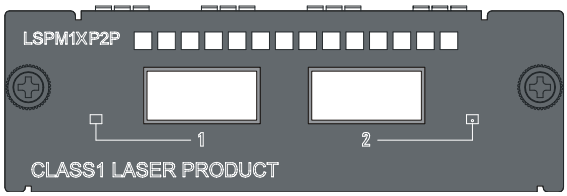


Figure 1-22 Front panel of dual-port 10 GE XFP interface card



A dual-port 10 GE XFP interface card provides two 10 Gbps XFP optical ports. You can insert an XFP transceiver into the port to connect it to another XFP port through an optical fiber. You can select the following XFP transceivers in Table 1-20 as required.

Table 1-20 XFP transceivers supported by 10 GE XFP interface card

Transceiver	Central wavelength	Connector	Fiber	Max transmission distance
XFP-SX-MM850	850 nm	LC	50/125 μm multimode optical fiber	300 m (984.25 ft.)
			62.5/125 μm multimode optical fiber	33 m (108.27 ft.)
XFP-LX-SM1310	1310 nm		9/125 μm single mode optical fiber	10 km (6.21 mi.)
XFP-LH40-SM1550-F1	1550 nm		9/125 μm single mode optical fiber	40 km (24.85 mi.)

Note

- The types of XFP transceivers may vary over time. Consult H3C marketing personnel or technical support personnel to obtain the latest information about XFP transceivers.
- For specifications of XFP transceivers, see *H3C Low End Series Ethernet Switches Pluggable Module Manual*.
- For how to install and remove an XFP transceiver, see *H3C Pluggable SFP/SFP+/XFP Transceiver Modules Installation Guide*.

One-port 10 GE XFP Interface Card

Figure 1-23 One-port 10 GE XFP interface card

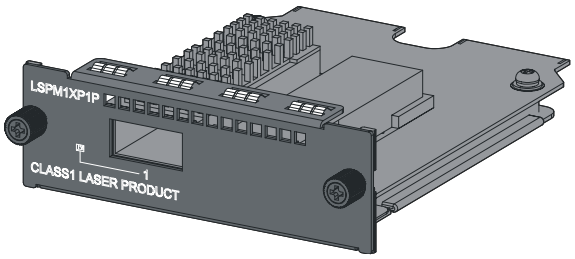
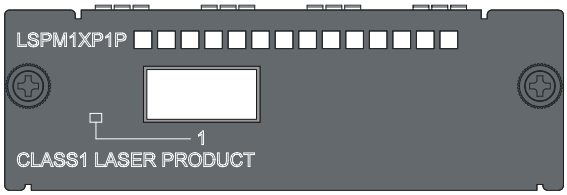


Figure 1-24 Front panel of one-port 10 GE XFP interface card



This module provides one 10 Gbps XFP optical interface. You can select the following XFP transceivers as required. A one-port 10 GE XFP interface card provides one 10 Gbps XFP optical port. You can insert an XFP transceiver into the port to connect it to another XFP port through an optical fiber. You can select the XFP transceivers list in Table 1-20 as required.

Dual-port GE SFP Interface Card

Figure 1-25 Dual-port GE SFP interface card

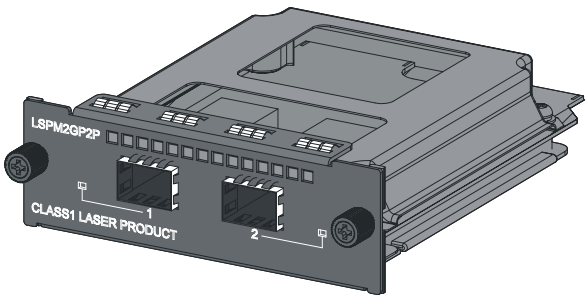
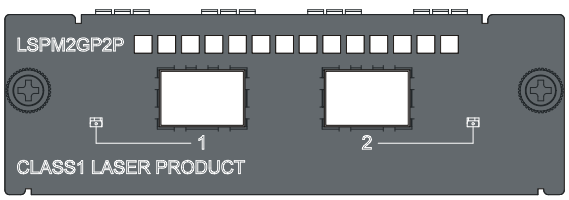


Figure 1-26 Front panel of dual-port GE SFP interface card



A dual-port GE SFP interface card provides two 1-Gbps SFP optical ports. You can insert an SFP transceiver into the port to connect it to another SFP port through an optical fiber. You can select the following SFP transceivers in Table 1-20 as required.

Table 1-21 SFP transceivers supported by GE SFP interface card

Transceiver		Central wavelength	Connector	Fiber	Max transmission distance
SFP-GE-SX-MM850-A		850 nm	LC	50/125 μm multimode optical fiber	550 m (1804.5 ft)
				62.5/125 μm multimode optical fiber	275 m (902.2 ft)
SFP-GE-LX-SM1310-A		1310 nm	LC	9/125 μm single mode optical fiber	10 km (about 6.2 mi)
SFP-GE-LH40-SM1310					40 km (about 24.9 mi)
SFP-GE-LH40-SM1550		1550 nm	LC		40 km (about 24.9 mi)
SFP-GE-LH70-SM1550					70 km (about 43.5 mi)
SFP-GE-LX-SM1310-BIDI	Note that these two transceiver models should be used in pairs.	TX: 1310 nm RX: 1490 nm	LC	9/125 μm single mode optical fiber	10 km (about 6.2 mi)
SFP-GE-LX-SM1490-BIDI		TX: 1490 nm RX: 1310 nm			
SFP-GE-T		—	RJ-45	Twisted pair cable	100 m (328.08 ft)

Note

- You are recommended to use SFP transceivers of H3C on the S5120-EI series.
- The types of SFP transceivers may update with time. For information about transceivers, contact H3C technical support or marketing staff.
- For the models and specifications of each kind of transceivers, see *H3C Low End Series Ethernet Switches Pluggable Modules Manual*.
- For how to install and remove an SFP transceiver, see *H3C Pluggable SFP/SFP+/XFP Transceiver Modules Installation Guide*.

Description of LEDs of Interface Cards

There is a LED for each port on the interface card panel. Table 1-22 describes the LEDs.

Table 1-22 Description of LEDs on interface cards

LED	Mark	Status		Description
Port LED of an interface card	—	This LED is not affected by the mode button.	On	The port is normally connected. The LED blinks quickly when the port is sending or receiving data.
			Off	The port is not up.

Note

For more information about the port mode switching button, see Port Mode LED.

2 Preparing for Installation

Safety Precautions

To avoid any device impairment and bodily injury caused by improper use, observe these rules:

- Before cleaning the switch, unplug the power plug of the switch first. Do not clean the switch with wet cloth or liquid.
- Do not place the switch near water or in a damp environment. Prevent water or moisture from entering the switch chassis.
- Do not place the switch on an unstable case or desk. The switch might be damaged severely in case of a fall.
- Ensure proper ventilation of the equipment room and keep the ventilation vents of the switch free of obstruction.
- Make sure that the operating voltage is the same as the voltage labeled on the switch.
- Do not open the chassis while the switch is operating or when electrical hazards are present to avoid electrical shocks.
- When replacing interface cards, wear ESD-preventive gloves to avoid damaging the cards.

Installation Site

The S5120-EI series must be used indoors. You can mount your switch in a rack or on a workbench, but make sure:

- Adequate clearance is reserved at the air inlet/exhaust vents for ventilation.
- The rack or workbench has a good ventilation system.
- The rack is sturdy enough to support the device and its accessories.
- The rack or workbench is well earthed.

To ensure normal operation and long service life of your switch, install it in an environment that meets the requirements described in the following subsections.

Temperature/Humidity

You must maintain a proper temperature and humidity in the equipment room. Long-term high humidity may lead to bad insulation, electricity leakage, mechanical property changes, and metal corrosion. However, if the relative humidity is two low, captive screws may become loose as the result of contraction of insulation washers and static electricity may be produced in a dry environment to jeopardize the circuits on the device. High temperature is the most undesirable condition, because it accelerates aging of insulation materials and can thus significantly lower reliability and service life of your switch.

For the temperature and humidity requirements of different models, see Product Models and Specifications.

Cleanness

Dust is a hazard to the operating safety of your device. The dust accumulated on the chassis can be adsorbed by static electricity and result in poor contact of metal connectors or metal contact points. Especially when the indoor relative humidity is low, electrostatic adsorption is more likely to happen. This can not only shorten the service life of your device but also cause communications failures. The following table lists the dust concentration limit.

Table 2-1 Dust concentration limit in the equipment room

Substance	Unit	Concentration limit
Dust	Particles/m^3	≤ 3 x 10^4 (no visible dust on the tabletop within three days)
Note: The dust particle size ≥ 5 μm.		

Besides dust, there are rigorous limits on the content of harmful substances in the air that can accelerate the corrosion and aging of metals, such as chloride, acid, and sulfide in the equipment room, and the equipment room must be protected against ingression of harmful gases such as SO_2, H_2S, NH_3, and Cl_2. For specific requirements, see the following table.

Table 2-2 Harmful gas limits in the equipment room

Gas	Maximum concentration (mg/m^3)
SO_2	0.2
H_2S	0.006
NH_3	0.05
Cl_2	0.01

Electromagnetic Susceptibility

The operation of your switch can be affected by external interferences, such as conducted emission by capacitance coupling, inductance coupling, electromagnetic wave radiation, and common impedance (including the grounding system) coupling, and leads (power cords, signaling cables and output wires). To eliminate the interferences, pay attention to the following:

- As the AC power system is a TN system, use a single-phase three-wire power socket with Protection Earth (PE) to effectively filter interference from the power grid.
- Keep the device far from radio transmitting stations, radar stations, and high-frequency devices.
- Use electromagnetic shielding when necessary, for example, use shielded interface cables.
- Route interface cables only indoors to prevent signal ports from getting damaged by overvoltage or overcurrent caused by lightning strikes.

Laser Safety

The S5120-EI series are Class 1 laser devices.

When the optical ports on the S5120-EI series are operating, do not stare into the optical ports because the laser light emitted by the optical fiber may hurt your retina.

Caution

Staring into the laser beam produced by the fiber may hurt your eyes.

Installation Tools

- Flathead screwdriver
- Phillips screwdriver
- ESD-preventive wrist strap

Caution

The installation tools are not shipped with the S5120-EI series.

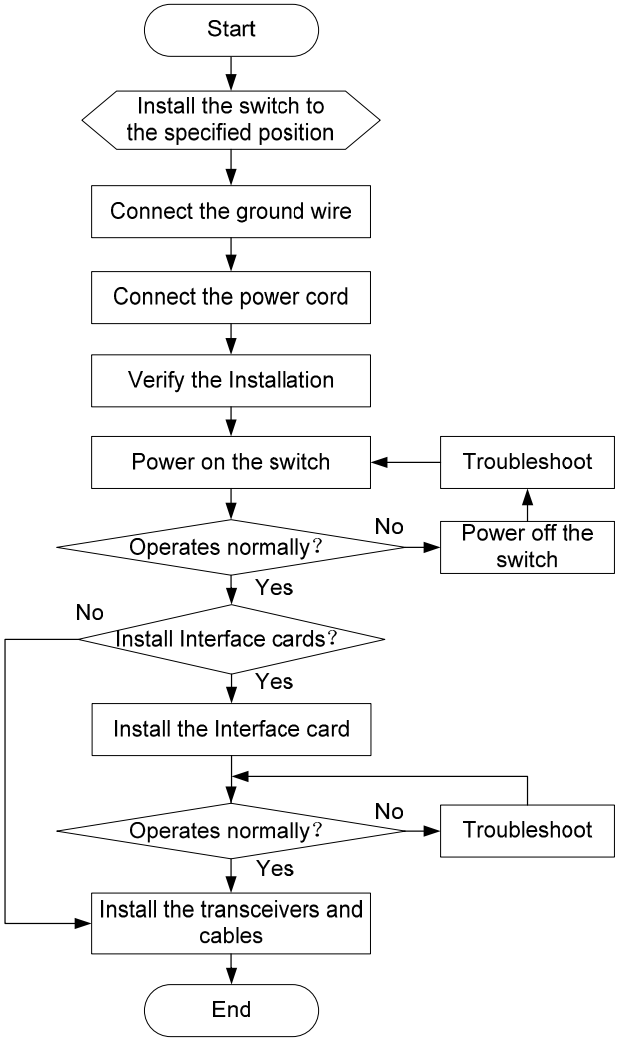
3 Installing the Switch

Caution

When you ask your sales agent to maintain the switch, you must ensure that the dismantlement-preventive seal on a mounting screw of the H3C switch chassis is intact. If you want to open the chassis, you should contact the agent for permission. Otherwise, you will bear any consequence resulted from your actions without permission.

Installation Flow of the Switch

Figure 3-1 Hardware installation flow of the switch



Note

The S5120-28C-EI, S5120-52C-EI, S5120-28C-PWR-EI, and S5120-52C-PWR-EI support IRF. For how to form an IRF virtual device, see Forming an IRF Virtual Device.

Installing the Switch into a 19-Inch Rack by Using Mounting Brackets

Installation Modes

You can install a switch into a 19-inch standard cabinet in one of the following four ways:

- Use front mounting brackets
- Use front mounting brackets and a tray
- Use front mounting brackets and rear mounting brackets
- Use front mounting brackets and guide rails

The installation methods of a switch depend on the depth and width of the switch. For the specific installation methods, see Table 3-1.

Table 3-1 Installation methods for a switch with a width of 440 mm (17.32 in.)

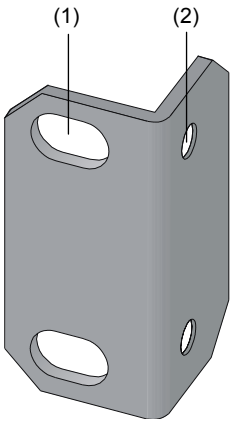
Method / Depth	Use front mounting brackets	Use front mounting brackets and a tray	Use front and rear mounting brackets	Use front mounting brackets and guide rails
300 mm (11.81 in.)	√	√	—	√
420 mm (16.54 in.)	—	√	√	√

Note

When the depth of a switch is greater than 300 mm (11.81 in.), the front mounting brackets only secure the switch rather than bear its weight.

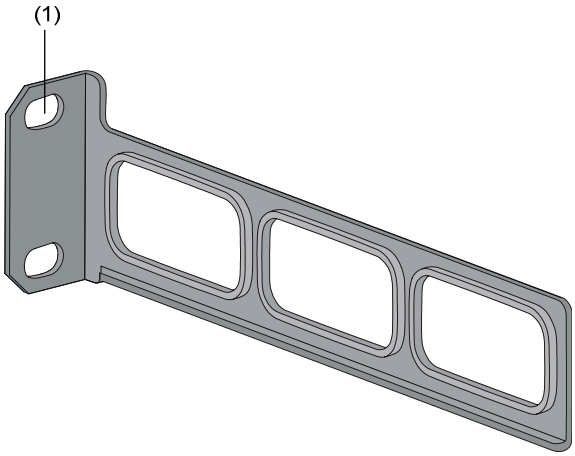
Introduction to Mounting Bracket

Figure 3-2 Appearance of a standard front mounting bracket



(1) Screw hole used to fix the mounting bracket to the cabinet (Use one M6 screw)
(2) Screw hole used to fix the switch to the mounting bracket

Figure 3-3 Appearance of a rear mounting bracket



(1) Screw hole used to fix the mounting bracket to the cabinet (Use one M6 screw)

For the selection of front and rear mounting brackets, see Table 3-2.

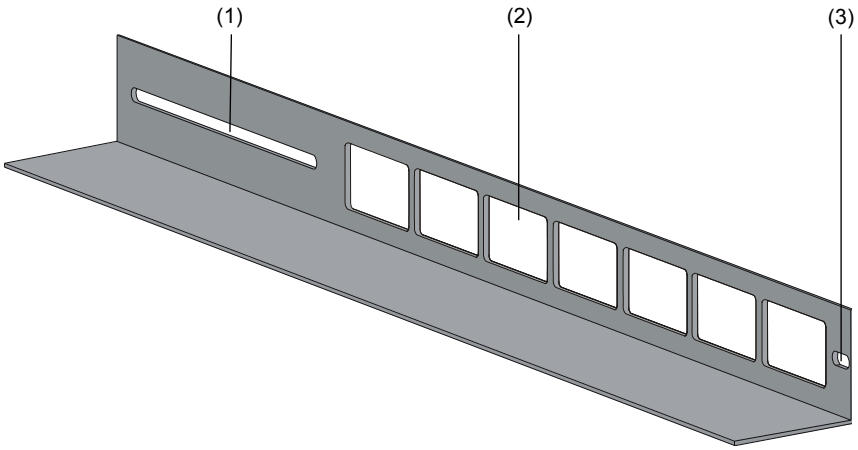
Table 3-2 Selection of mounting bracket for S5120-EI Series Ethernet switches

Model	Physical dimensions (H × W × D)	Configuration type of front mounting bracket	Configuration type of rear mounting bracket
S5120-28C-EI S5120-52C-EI S5120-24P-EI S5120-48P-EI	43.6 × 440 × 300 mm (1.72 × 17.32 × 11.81 in.)	Standard	—
S5120-28C-PWR-EI S5120-52C-PWR-EI	43.6 × 440 × 420 mm (1.72 × 17.32 × 16.54 in.)	Standard	Standard

Introduction to Guide Rail

Guide rails are optional parts. Check Table 3-1 to see whether you need to order them or not.

Figure 3-4 Appearance of a guide rail



(1) Slotted hole 1: Used to fix the guide rail to the rear post. You can adjust the screw hole position according to the position of the switch.
(2) Cooling hole: Used for heat dissipation between switch and cabinet
(3) Slotted hole 2: Used to fix the guide rail to the front bracket

Note

Guide rails purchased from H3C apply only to standard cabinets 1,000 mm (39.37 in.) deep. Use other supports to substitute for guide rails in the case of other cabinet depths.

Use Front Mounting Brackets to Install a Switch

Only the S5120-28C-EI, S5120-52C-EI, S5120-24P-EI, and S5120-48P-EI support installation by using front mounting brackets.

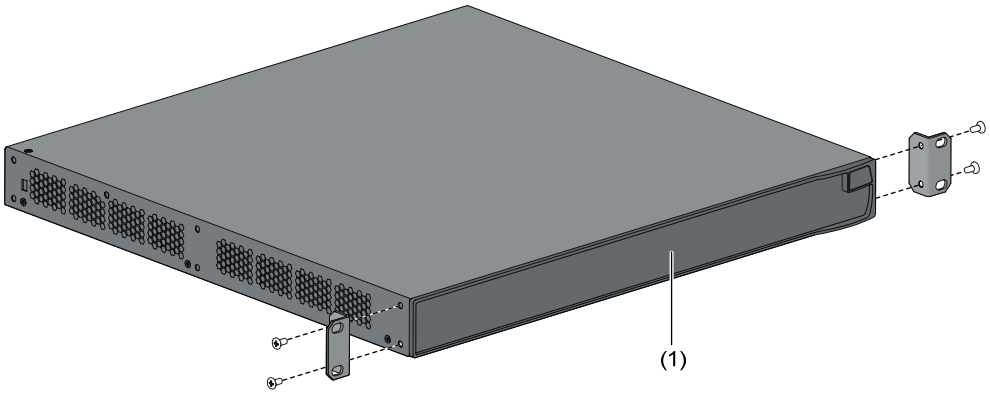
Follow these steps to mount a switch into a 19-inch standard cabinet:

Step1 Wear an ESD-preventive wrist strap and ensure a good skin contact and grounding.

Step2 Check the grounding and stability of the cabinet.

Step3 Take out the screws which are packed together with the front mounting brackets, and fix one end of mounting brackets to the switch, as shown in Figure 3-5.

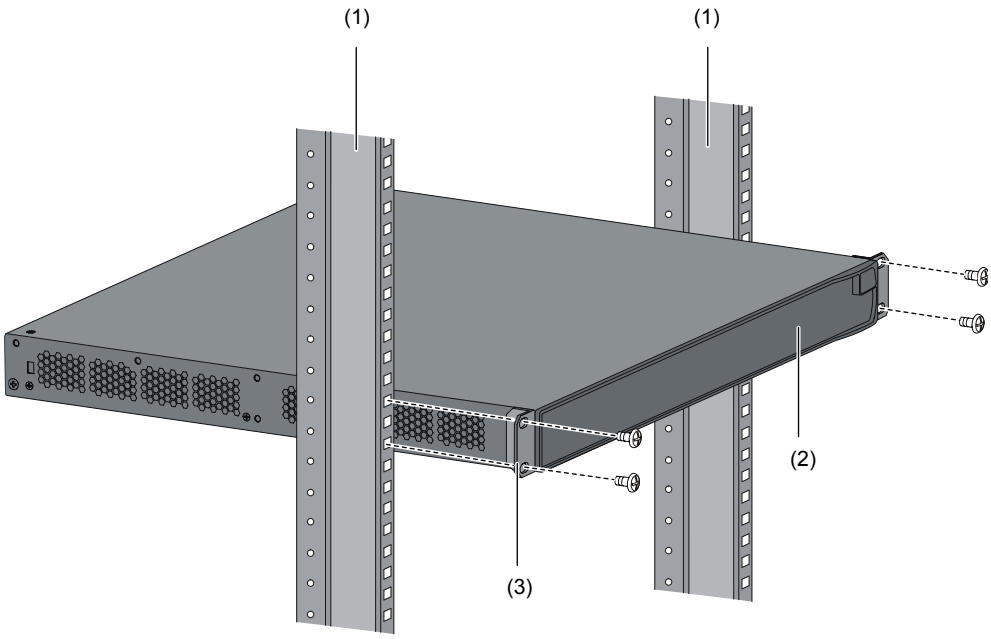
Figure 3-5 Fix front mounting brackets (1)



(1) Front panel of the switch

Step4 Place the switch horizontally in a proper position, and fix the other end of mounting brackets to the front brackets with screws and captive nuts, as shown in Figure 3-6.

Figure 3-6 Fix front mounting brackets (2)



(1) Front square-holed post	(2) Front panel
(3) Front mounting bracket	

Use Front Mounting Brackets and a Tray to Install a Switch

All models of the S5120-EI series support installation by using front mounting brackets together with a tray.

Follow these steps to install a switch into a 19-inch standard cabinet:

Step1 Wear an ESD-preventive wrist strap and ensure a good skin contact and grounding.

Step2 Check the grounding and stability of the cabinet.

Step3 Fix the delivered tray horizontally in a proper position.

Step4 Take out the screws which are packed together with the front mounting brackets, and fix one end of mounting brackets to the switch, as shown in Figure 3-5.

Step5 Place the switch on the tray horizontally, slide the tray into the cabinet, and fix the other end of mounting brackets to the front brackets with crews and captive nuts, as shown in Figure 3-6.

Use Front and Rear Mounting Brackets to Install a Switch

Only the S5120-28C-PWR-EI and S5120-52C-PWR-EI support installation by using front mounting brackets together with rear mounting brackets.

Follow these steps to install a switch into a 19-inch standard cabinet:

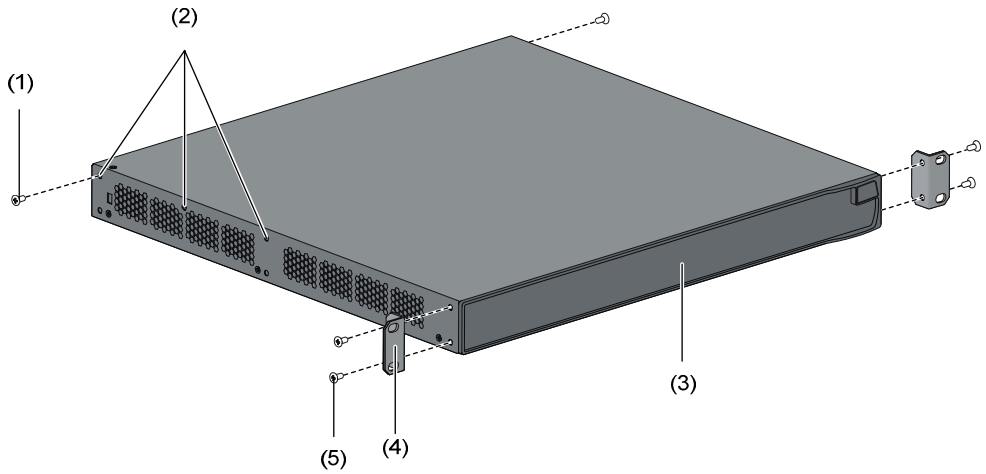
Step1 Wear an ESD-preventive wrist strap and ensure a good skin contact and grounding.

Step2 Check the grounding and stability of the cabinet.

Step3 Take out the screws which are packed together with the front mounting brackets, and fix one end of mounting brackets to the switch, as shown in Figure 3-5.

Step4 Take out the load-bearing screws (packed together with the rear mounting brackets) and place them in a proper position on the sides of the switch, as shown in Figure 3-7.

Figure 3-7 Fix front mounting brackets and load-bearing screws



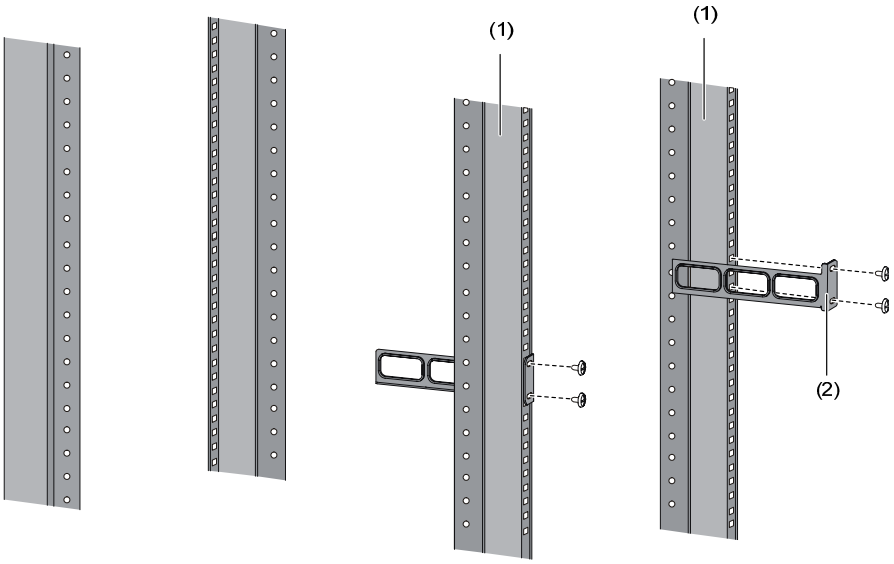
(1) Load-bearing screw	(2) Optional positions for Load-bearing screw
(3) Front panel	(4) Front mounting bracket
(5) Screw used to fix front mounting brackets to the switch	

Note

There are three positions to mount a load-bearing screw on both sides of a switch. You should select a proper position according to the actual requirements. The rear mounting brackets tightly contacted with the load-bearing screws can support the switch.

Step5 Select a position to install the switch and fix the rear mounting brackets to the rear posts with screws and captive nuts, as shown in Figure 3-8.

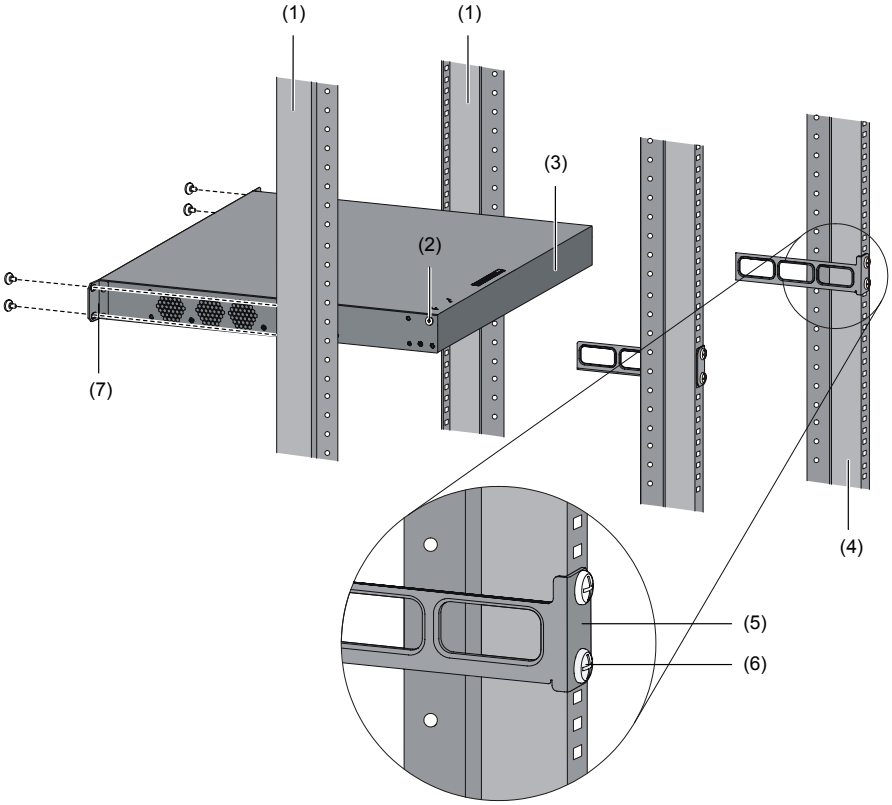
Figure 3-8 Fix rear mounting brackets



(1) Rear square-holed post	(2) Rear mounting bracket

Step6 Hold the bottom of the switch with one hand and the front part of the switch with the other hand, and push the switch into the cabinet gently, as shown in Figure 3-9.

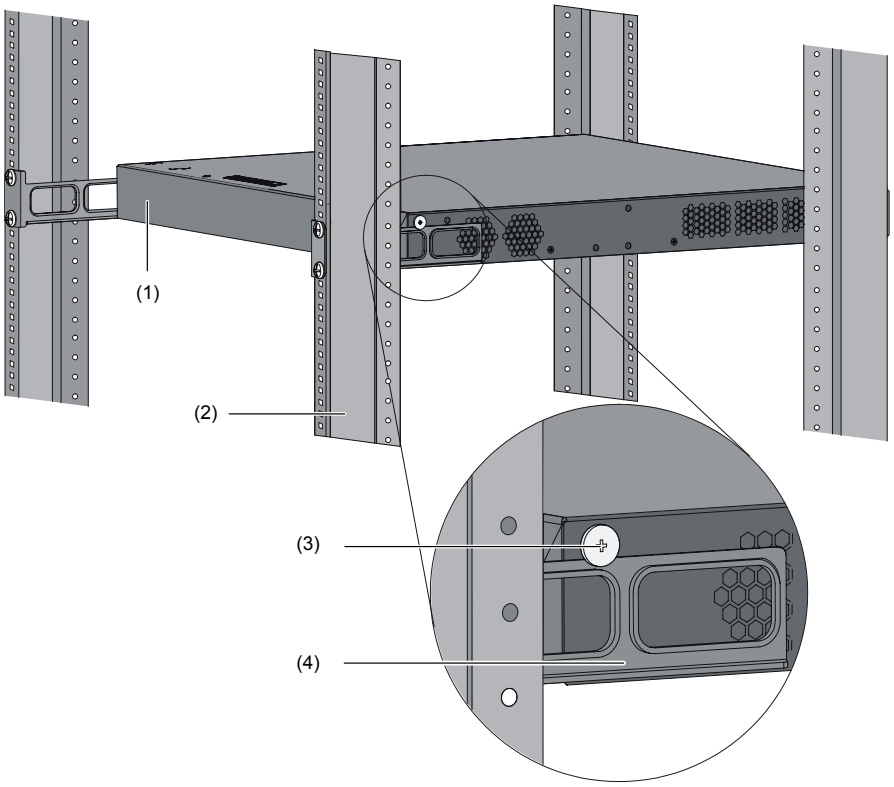
Figure 3-9 Fix front and rear mounting brackets



(1) Front square-holed post	(2) Load-bearing screw: Used to bear the weight
(3) Rear panel	(4) Rear square-holed post
(5) Rear mounting bracket	(6) Screw used to fix rear mounting brackets to rear posts
(7) Front mounting bracket	

After the switch is pushed into the cabinet, ensure that the upper edge of rear mounting brackets is tightly contacted with the load-bearing screw, as shown in Figure 3-10.

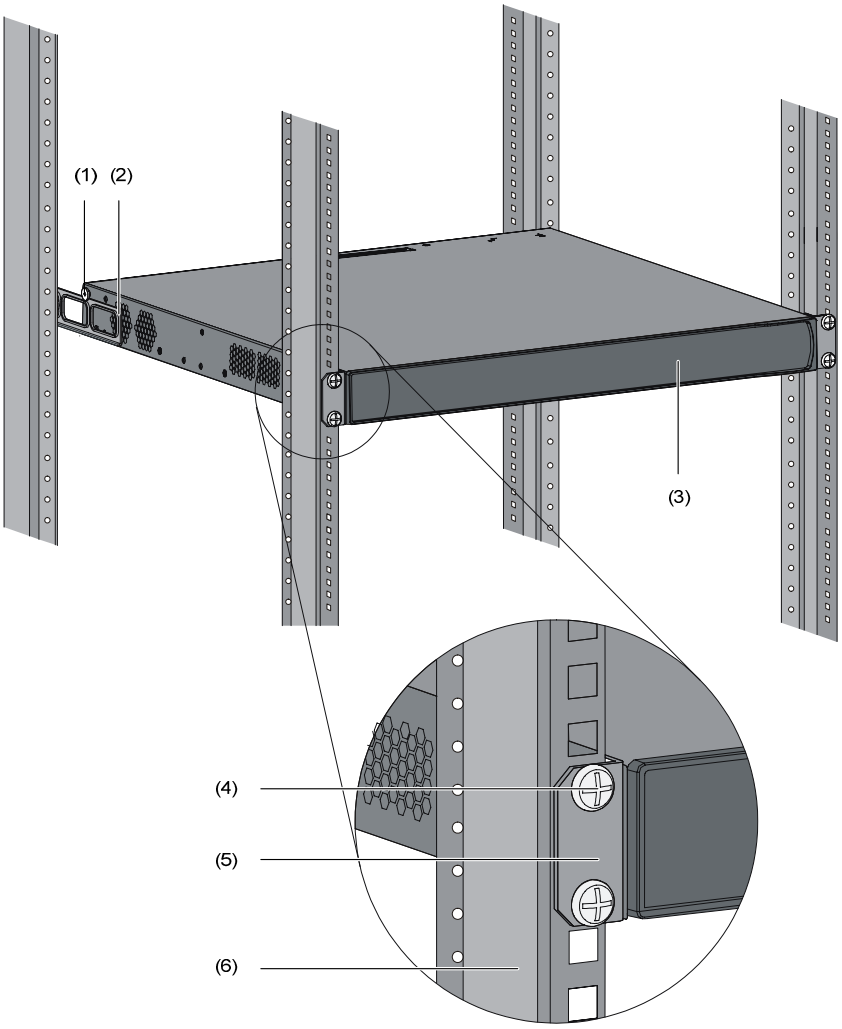
Figure 3-10 Effect diagram of front and rear mounting bracket installation (1)



(1) Rear panel	(2) Rear square-holed post
(3) Load-bearing screw	(4) Rear mounting bracket

Step7 Fix the other end of the front mounting brackets to the front brackets with screws and captive nuts and ensure that front and rear mounting brackets have fixed the switch in the cabinet securely, as shown in Figure 3-11.

Figure 3-11 Effect diagram of front and rear mounting bracket installation (2)



(1) Load-bearing screw	(2) Rear mounting bracket
(3) Front panel	(4) Screw used to fix front mounting brackets to front brackets
(5) Front mounting bracket	(6) Front square-holed post

Use Front Mounting Brackets and Guide Rails to Install a Switch

All the models of the S5120-EI series support installation by using front mounting brackets together with guide rails.

Follow these steps to install a switch into a 19-inch standard cabinet:

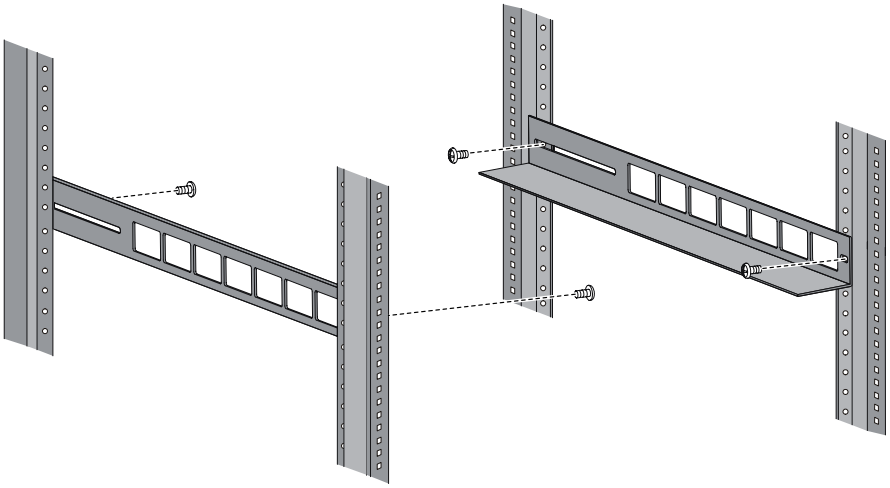
Step1 Wear an ESD-preventive wrist strap and ensure a good skin contact and grounding.

Step2 Check the grounding and stability of the cabinet.

Step3 Take out the screws packed together with the front mounting brackets and fix one end of the front mounting brackets to the switch, as shown in Figure 3-5.

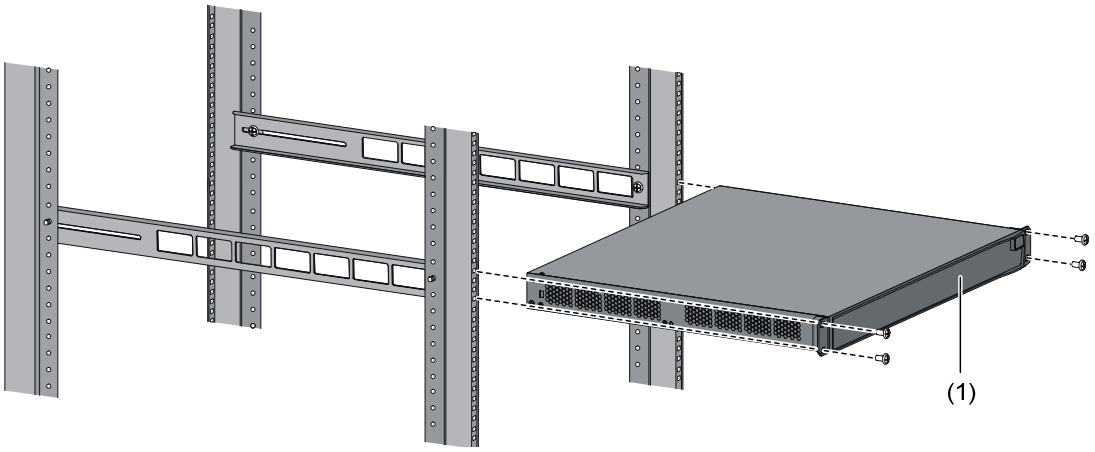
Step4 Install guide rails on the brackets on both sides of the cabinet with M5 self-tapping screws. Figure 3-12 is for reference only.

Figure 3-12 Install guide rails



Step5 Hold the two sides of the switch and slide it gently along the guide rails into the cabinet until it is located in a proper position, as shown in Figure 3-13. Ensure that the bottom side of the guide rails and the switch are in close contact.

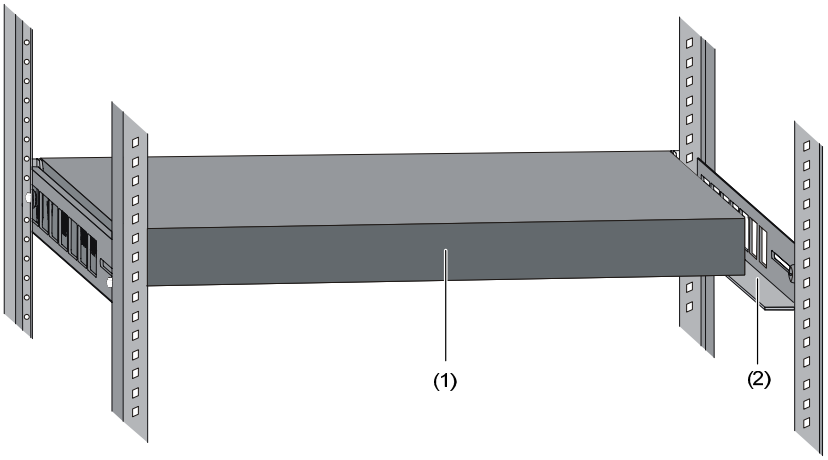
Figure 3-13 Install front mounting brackets and guide rails



(1) Front panel

Step6 Fix the other end of front mounting brackets to the front brackets of the cabinet with M6 screws and captive nuts and ensure that the front mounting brackets and guide rails have fixed the switch in the cabinet securely, as shown in Figure 3-14.

Figure 3-14 Effect diagram of front mounting bracket and guide rail installation



(1) Rear panel	(2) Guide rail

Note

Ensure a clearance of 1U (44.45 mm, namely, 1.75 inches) between devices for the purpose of heat dissipation.

Mounting the Switch on a Workbench

In many cases, standard 19-inch racks are not available. Therefore, switches are often placed on clean workbenches. To place your switch on a workbench, you simply need to:

- Make sure that the workbench is clean, flat, and sturdy.
- Make sure that the environment is well ventilated and allows 10 cm (3.94 in.) of space around the chassis for heat dissipation.
- Do not place heavy objects on your switch.
- The vertical distance between two switches must be at least 1.5 cm (0.59 in).

Connecting the Grounding Cable

Caution

- Correctly connecting the chassis grounding cable is crucial to the lightning protection and electromagnetic susceptibility (EMS) of a switch.
- The power and grounding terminals in this section are for illustration only.

The power input end of the switch is connected with a noise filter, whose central ground is directly connected to the chassis, forming the so-called chassis ground (commonly known as PGND). This

chassis ground must be securely connected to the earth so that the faradism and leakage electricity can be safely released to the earth, enhancing the EMS capability of the switch.

When a Grounding Strip Is Available

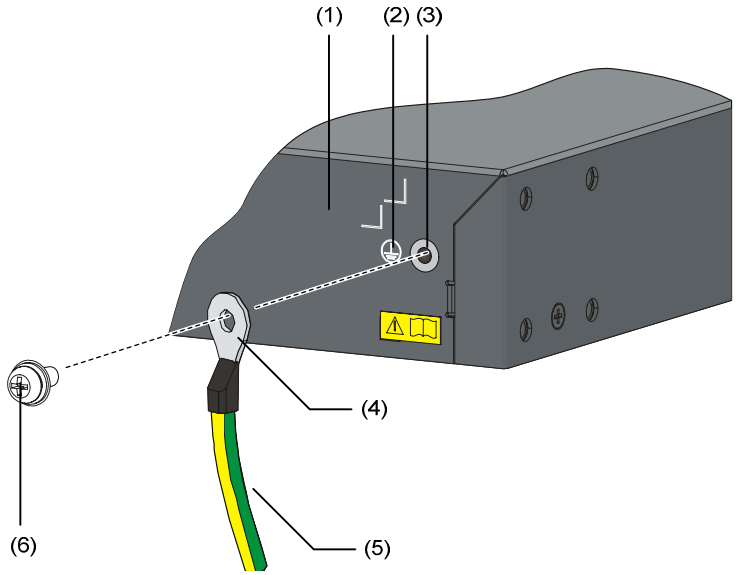
When a grounding strip is available at the installation site, attach one end of the yellow-green grounding cable (PGND cable) of the switch to the grounding screw on the grounding strip (the grounding screw and the grounding hole are on the rear panel of the switch and are marked with a grounding sign). To do this, follow these steps:

Step1 Remove the grounding screw from the rear panel of the switch chassis.

Step2 Put the supplied OT terminal of the PGND cable on the grounding screw.

Step3 Fasten the grounding screw, which is attached with the OT terminal of the PGND cable, into the grounding screw hole with a screwdriver.

Figure 3-15 Connect the PGND cable to the grounding hole of switch



(1) Rear panel of the switch	(2) Grounding sign
(3) Grounding hole	(4) OT terminal
(5) PGND cable	(6) Grounding screw

To attach the other end of the PGND cable to the grounding strip in the equipment room, follow these steps:

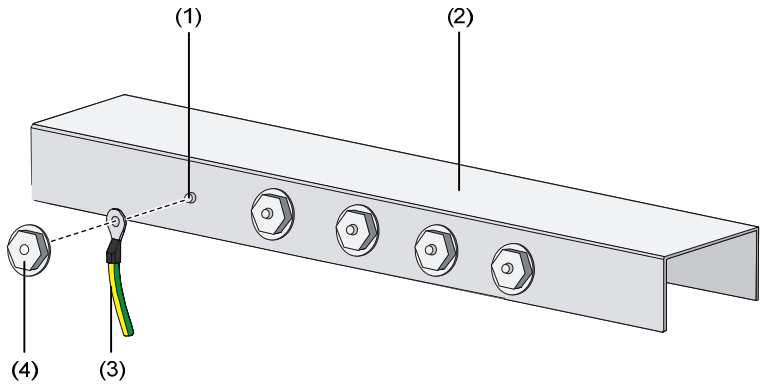
Step1 Cut the PGND cable to a proper length according to the distance between the switch and the grounding strip.

Step2 Peel 5 mm (0.20 in.) of insulation sheath by using a wire stripper, and then insert the naked metal part through the black insulation covering into the end of the OT terminal. (Two OT terminals are provided with the PGND cable when shipped with the switch; select a proper OT terminal according to the size of the grounding post.)

Step3 Secure the metal part of the cable to the OT terminal with a crimper, and then cover it with the insulation covering. Then heat the insulation covering with a blowing machine to let it completely cover the metal part.

Step4 Connect the OT terminal to the grounding pole of the grounding strip, and then fasten it with a hex nut.

Figure 3-16 Connect the PGND cable to the grounding strip



(1) Grounding post	(2) Grounding strip
(3) PGND cable	(4) Hex nut

Caution

The fire main and lightning rod of a building are not suitable for grounding the switch. The ground wire of the switch should be connected to the grounding device for the equipment room.

Where a Grounding Conductor Can be Buried

When there is no grounding strip, but an area with exposed earth is available nearby where a grounding conductor can be buried, hammer a 0.5 m (1.64 ft.) or longer angle iron or steel tube into the earth. The angle iron should have a dimension no less than 50 × 50 × 5 mm (1.97 × 1.97 × 0.20 in.) and the steel tube should have a wall thickness no less than 3.5 mm (0.14 in.) and be zinc-coated. Weld the yellow-green ground wire to the angel iron or steel tube and treat the joint for corrosion protection.

Figure 3-17 Ground the switch by burying the grounding conductor into the earth

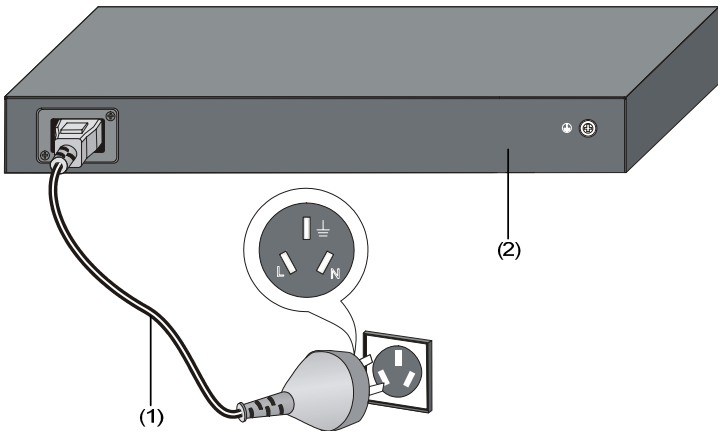
(1) Grounding screw	(2) PGND cable	(3) Earth
(4) Joint	(5) Grounding conductor	(6) Switch rear panel

In Other Installation Sites

For an AC-powered switch, if neither of the above-mentioned two conditions is available, ground the switch through the PE wire of the AC power supply. Make sure the PE wire is well connected to the

ground at the power distribution room or AC transformer side, the switch PE terminal and the PE wire are well connected, and the three-wire input cable of the PGND cable is used for the power supply cable. If the PE wire of the AC power supply is not grounded at the power distribution room or AC transformer side, report the problem and make reconstructions.

Figure 3-18 Ground through an AC power PE wire



(1) Three-wire AC power input cable	(2) Switch rear panel

Note

Use the PGND cable provided with the switch to connect the grounding strip in the equipment room. Otherwise, the grounding effect may not be ensured, which easily causes damage to the switch.

Connecting the Power Cords

Caution

Make sure that the ground wire has been properly connected before powering on the switch.

Connecting the AC Power Cord

To connect an AC power cord, follow these steps:

Step1 Connect one end of the chassis ground wire to the grounding screw on the rear of the chassis and the other end to the ground as near as possible.

Step2 Install the bail latch to prevent the AC power cord from accidentally falling off. Fix the bail latch into the holes located at the two sides of the AC power receptacle. Then pull the bail latch upwards (see in Figure 3-19 or Figure 3-21).

Step3 Connect one end of the AC power cord to the AC receptacle on the switch (see callout 1 in Figure 3-20 or Figure 3-22).

Step4 Pull the bail latch down to secure the plug to the AC receptacle (see callout 2 in Figure 3-20 or Figure 3-22).

Step5 Connect the other end of the AC power cord to the external AC power supply system.

Step6 Check whether the system status LED (PWR) on the front panel of the switch is ON. If the LED is ON, it shows the power cord is properly connected.

Figure 3-19 Connect an AC power cord to a horizontal AC power socket (1)

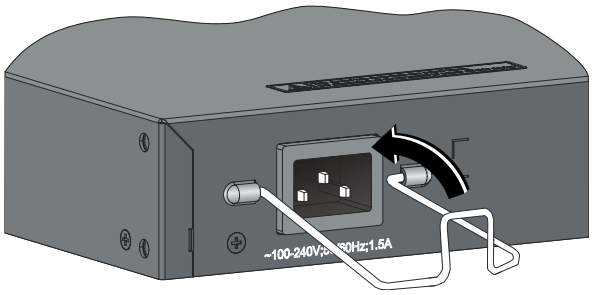


Figure 3-20 Connect an AC power cord to a horizontal AC power socket (2)

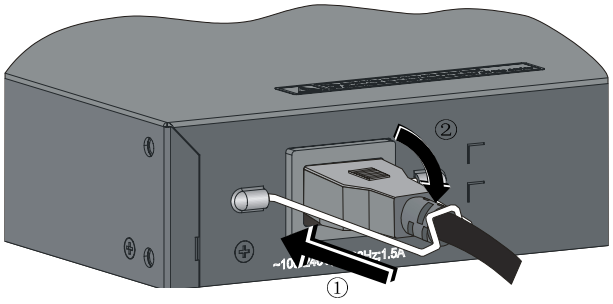


Figure 3-21 Connect an AC power cord to a vertical AC power socket (1)

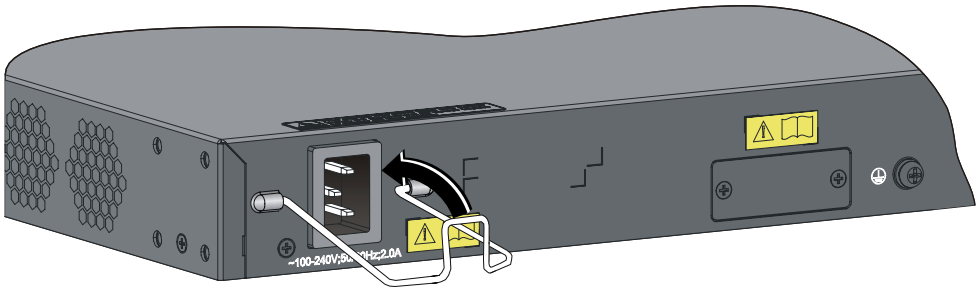
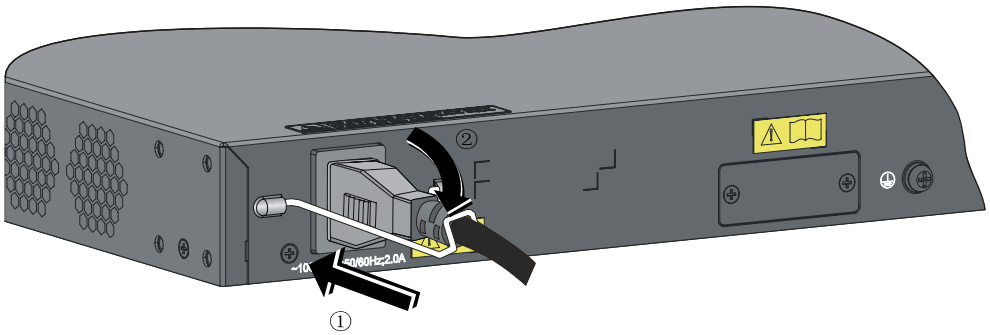


Figure 3-22 Connect an AC power cord to a vertical AC power socket (2)



Connecting the RPS Power Cord

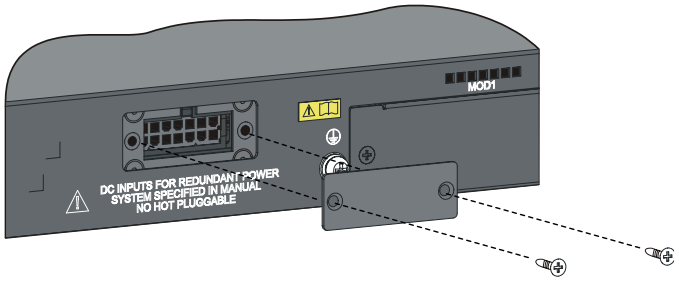
Connect RPS power cords of S5120-28C-EI, S5120-52C-EI, S5120-24P-EI, and S5120-48P-EI

Follow these steps to connect an RPS power cord to the switch:

Step1 Connect one end of the chassis ground wire to the grounding screw on the rear panel of the chassis and the other end to the ground as near as possible.

Step2 Loosen the captive screws on the RPS receptacle protective cover and remove the protective cover, as shown in Figure 3-23. (If you do not use the 12 VDC RPS interface, install the protective cover.)

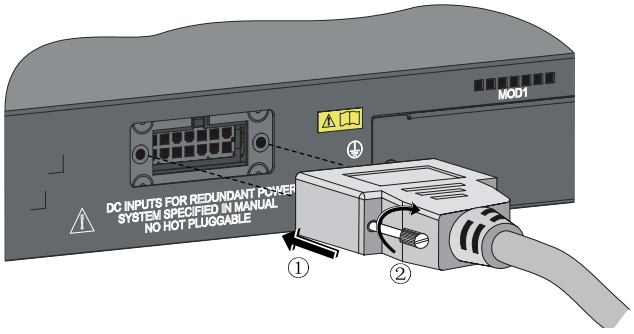
Figure 3-23 Connect an RPS power cord (1)



Step3 Keep the upside of the 12 VDC RPS plug on top and plug it in the RPS DC receptacle (see callout 1 in Figure 3-24). (If you plug it with the upside down, the insertion is not smooth because of the specific structure design of the RPS DC receptacle and the RPS plug.)

Step4 Use a flat-blade screwdriver to fix the two screws on the RPS plug clockwise to secure the plug to the RPS DC receptacle (see callout 2 in Figure 3-24).

Figure 3-24 Connect an RPS power cord (2)



Step5 Connect the other end of the 12 VDC RPS power cord to the external RPS power supply system.

Step6 Check whether the RPS LED on the front panel of the switch is ON. If yes, the power is properly connected.

Connecting the RPS Power Cord of the S5120-28C-PWR-EI and S5120-52C-PWR-EI switches

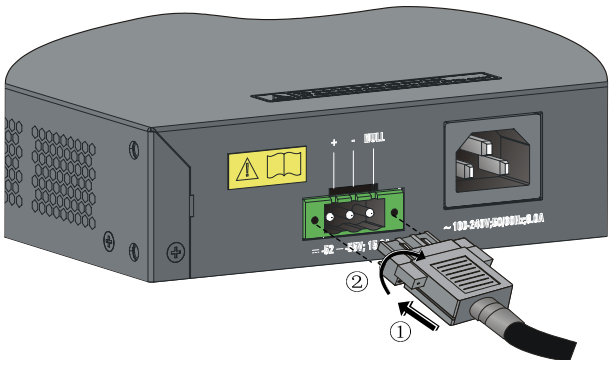
Follow these steps to connect an RPS power cord to the switch:

Step1 Connect one end of the grounding wire (delivered with the switch) to the grounding screw and the other end to the ground nearby.

Step2 Keep the upside of the RPS plug on top and plug it in the RPS DC receptacle (see callout 1 in Figure 3-25). (If you plug it upside down, the insertion is not smooth because of the specific structure design of the RPS DC receptacle and the RPS plug.)

Step3 Use a flat-blade screwdriver to fix the two screws on the RPS plug clockwise to secure the plug to the RPS DC receptacle (see callout 2 in Figure 3-25).

Figure 3-25 Connect an RPS power cord to the S5120-28C-PWR-EI/S5120-52C-PWR-EI



Step4 Connect the other end of the RPS DC power cord to the external RPS power supply system.

Step5 Check whether the RPS LED on the front panel of the switch is ON. If the LED is ON, it shows the power cord is properly connected.

Installing an Interface Card

Each S5120-28C-EI/S5120-52C-EI/S5120-24P-EI/S5120-48P-EI switch provides two interface card slots on the rear panel. For details about optional interface cards, see Optional Interface Cards and Interfaces on page 1-17.

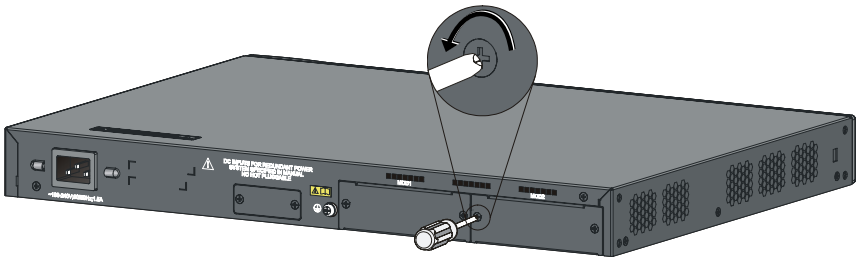
The installation and removal of various interface cards are similar. This section describes the installation and removal of the Dual-Port 10 GE SFP+ Interface Card (LSPM2SP2P) for illustration.

Installing an Interface Card

Step1 Wear an ESD-preventive wrist strap, ensure a good skin contact and make sure that the ESD-preventive wrist strap is properly grounded.

Step2 Loosen the mounting screws of the filler panel on the interface card slot of the switch's rear panel with a Phillips screwdriver and remove the filler panel.

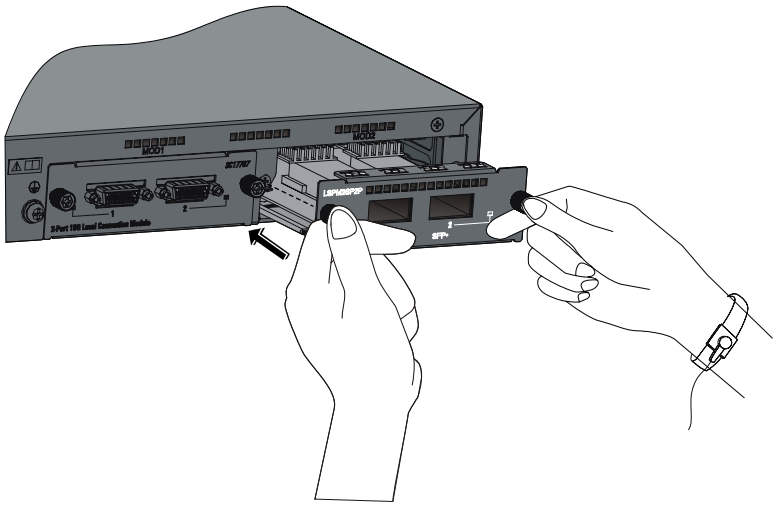
Figure 3-26 Install an interface card (1)



Step3 Hold the fastening screws on the front panel of the SFP+ interface card, and gently push the interface card in along the slot guide rail until the interface card is in close contact with the switch.

Step4 Tighten the captive screws with a Phillips screwdriver to fix the interface card.

Figure 3-27 Install an interface card (2)



Note

- Keep the removed filler panel properly for future use.
- When tightening the fastening screws at both sides of the optional module with a screwdriver or an electric screwdriver, make sure that the torque is not bigger than 0.4 N-m.

Removing an Interface Card

Step1 Wear an ESD-preventive wrist strap, ensure a good skin contact and make sure that the ESD-preventive wrist strap is properly grounded.

Step2 Use a Phillips screwdriver to loosen the captive screws at both sides of the interface card until all spring pressure is released.

Step3 Pull the interface card towards you along the guide rails, until it completely comes out of the switch chassis.

Note

When installing or removing an optional interface card, pay attention to the following points:

- Do not touch the surface-mounted components directly with your hands.
- Do not use too much force in the operation.
- After removing an interface card, if no new module is to be installed, install the filler panel as soon as possible to prevent dust and ensure the normal ventilation in the switch.

Installing Dedicated CX4/SFP+ Cable

Installing Dedicated CX4/SFP+ Cable

Note

- Make sure that you have installed a CX4/SFP+ interface card before installing dedicated CX4/SFP+ cables.
- The installation and removal procedures of a CX4 cable are similar to that of an SFP+ cable. This section describes the installation and removal of the SFP+ cable for illustration.

Step1 Put on an ESD-preventive wrist strap and verify the ESD-preventive wrist strap properly grounded. Then take out the dedicated SFP+ cable from the package.

Step2 Horizontally plug the plug of the dedicated SFP+ cable into the SFP+ port of the switch and pay attention to the direction of the plug when plugging it.

Removing Dedicated CX4/SFP+ Cable

Step1 Put on an ESD-preventive wrist strap and verify the ESD-preventive wrist strap properly grounded.

Step2 Hold the plug of the SFP+ cable, pull the handle at the end of the plug to horizontally unplug the plug of the SFP+ cable from the SFP+ port of the switch.

Caution

- Dedicated CX4/SFP+ cable of the S5120-EI series is hot pluggable.
- Make sure that the cable bending radius is no less than eight times of the cable diameter when dedicated CX4/SFP+ cable is connected.

Forming an IRF Virtual Device

The S5120-28C-EI, S5120-52C-EI, S5120-28C-PWR-EI, and S5120-52C-PWR-EI support the IRF function. You can install IRF-capable interface cards to connect multiple switches through the 10 GE

ports to form a logical device, thus to establish a new intelligent network with high reliability, expandability, and manageability.

Flow for Forming an IRF Virtual Device

Figure 3-28 Flow for forming an IRF virtual device

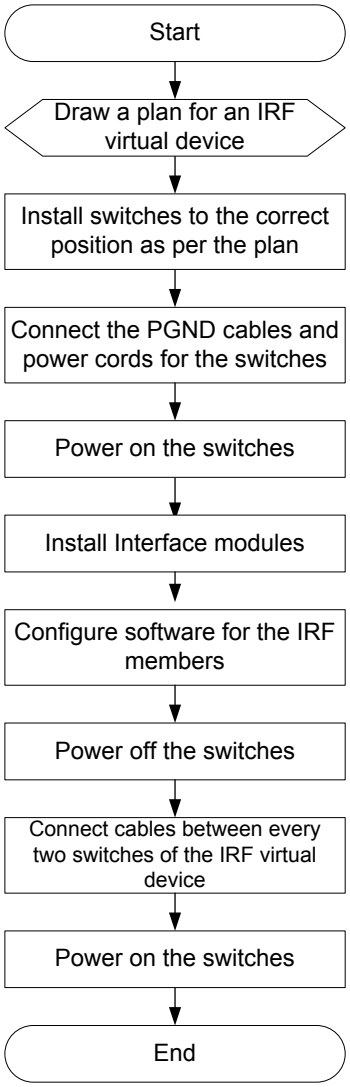

Start
Draw a plan for an IRF virtual device
Install switches to the correct position as per the plan
Connect the PGND cables and power cords for the switches
Power on the switches
Install Interface modules
Configure software for the IRF members
Power off the switches
Connect cables between every two switches of the IRF virtual device
Power on the switches
End

Table 3-3 Description of the flow for forming an IRF virtual device

No	Task	Remarks
1	Draw a plan for an IRF virtual device with switches	Take the following into consideration: • Number of IRF members and the bandwidth • Interface cards and cables • Physical connection mode(daisy chain connection or ring connection) • Cable connection For more information, see Drawing a Plan for an IRF Virtual Device.
2	Install the IRF members to the correct position	For detailed installation procedures, see: • Installing the Switch into a 19-Inch Rack by Using Mounting Brackets. • Mounting the Switch on a Workbench.

No	Task	Remarks
3	Connect grounding cables and power cords for the switches	For more information, see: • Connecting the Grounding Cable. • Connecting the Power Cords.
4	Power on the IRF members	—
5	Install interface cards	For more information, see Installing an Interface Card.
6	Configure software for the IRF members	For more information about the IRF function, see *H3C S5120-EI Series Ethernet Switches IRF Configuration Guide*.
7	Power off the switches	—
8	Connect the cables	Use cables to connect 10 G ports of the interface cards: • The given XFP ports work with XFP optical transceivers and fibers • The given SFP+ ports can work with SFP+ optical transceivers and fibers for long-haul transmission; or they can be directly connected through dedicated SFP+ cables for short-haul transmission • The given CX4 ports use dedicated CX4 cables for connection For how to connect the cables, see Installing Dedicated CX4/SFP+ Cable.
9	Power on the switches	Finish establishing an IRF virtual device

Drawing a Plan for an IRF Virtual Device

Before implementing an IRF virtual device, draw a plan according to actual conditions of the user network and network devices and take the following points into consideration:

Determine the number of IRF members and the bandwidth

You can determine the number of IRF members and the bandwidth according to the network scale.

The S5120-EI series support aggregation of the 10 GE ports. You can assign the two 10 GE ports of an interface card to an aggregation group to expand the bandwidth for the IRF virtual device.

Note

10 GE ports of different interface cards cannot join the same aggregation group in the IRF virtual device. Therefore, 1-port XFP interface cards do not support port aggregation in the IRF virtual device.

Select the proper interface cards and cables

You can select the interface cards and cables according to the distance between members of the IRF virtual device. For long-distance connections, use XFP or SFP+ optical modules and fibers to connect the devices; for short-distance connections, use LSPM1CX2P or LSPM2SP2P with CX4 or SFP+ cables to connect the devices. For relevant information, see Optional Interface Cards and Interfaces.

Configure the physical connection mode

IRF supports two physical connection modes: daisy chain connection and ring connection.

A ring connection is more reliable than a daisy chain connection. The failure of one link in a ring connection does not affect the function and performance of the IRF virtual device, whereas the failure of one link in a daisy chain connection causes the split of the IRF virtual device.

Figure 3-29 The daisy chain connection mode

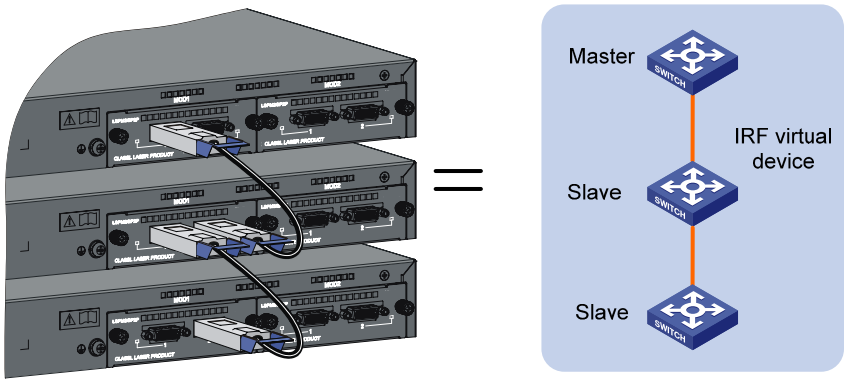
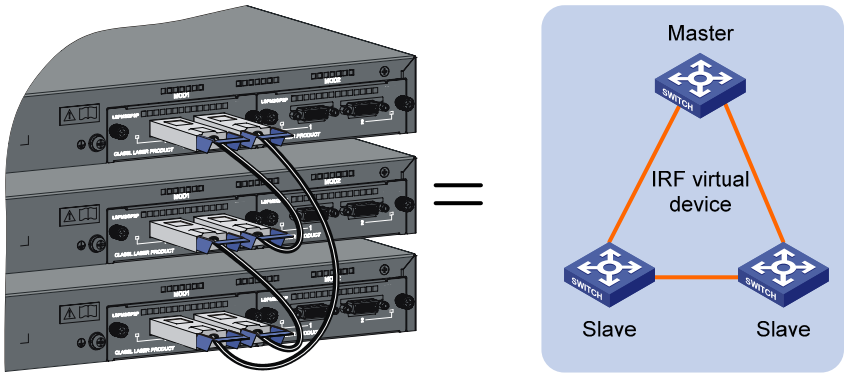


Figure 3-30 The ring connection mode



Note

Each of the devices comprising a ring connection or non-edge devices in a daisy chain connection needs two 10 GE ports to connect other devices; therefore, you need to install two 1-port 10 GE XFP interface cards on such devices.

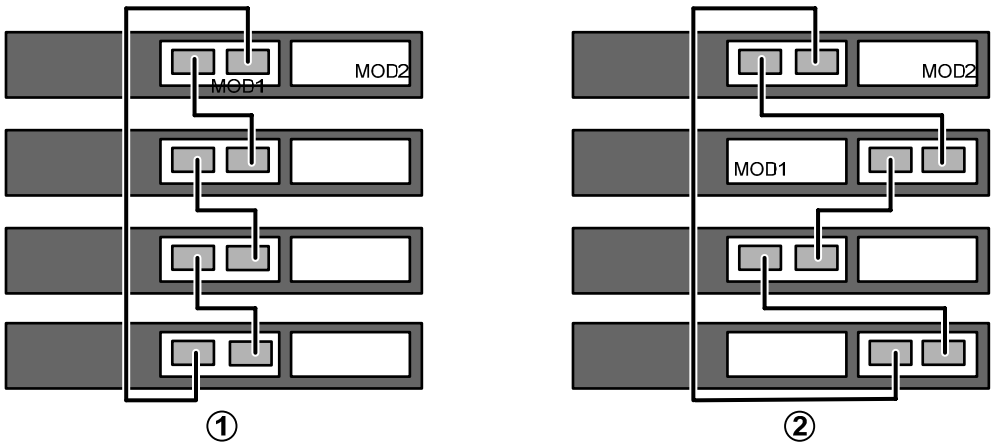
Connect the cables

Before connecting the cables, determine the actual position of the member devices and the length of the cables, and observe the following:

- Understand the neighbor devices for one another
- Install the interface cards in proper slots as needed. Each S5120-EI series provides two expansion slots.
- Determine the ports on different devices to be connected.

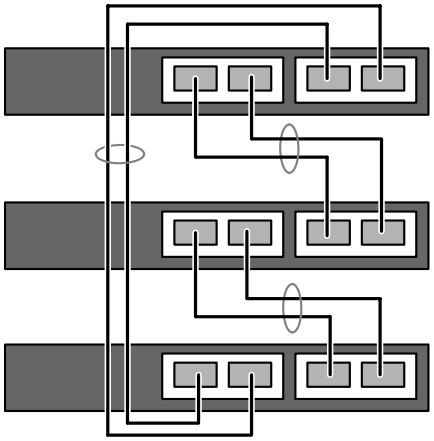
When 2-port interface cards are used to constitute an IRF virtual device and the ports are not assigned to any aggregation group, ports of the interface card in slot 1 (MOD 1) can be connected to ports of MOD 1 or MOD 2. However, the left port can be connected to only the right port of another interface card, that is, two ports at the same side cannot be connected, as shown in Figure 3-31.

Figure 3-31 Cable connections of an IRF virtual device in the non-aggregate mode with 2-port interface cards



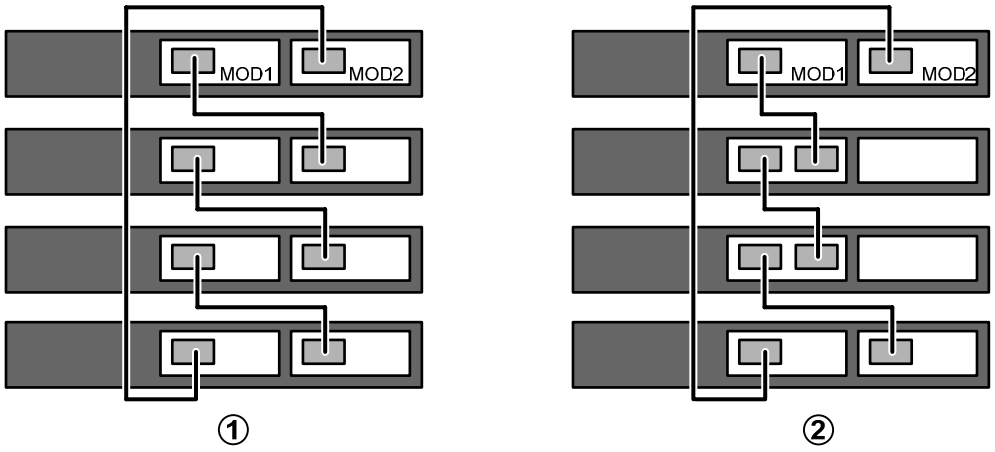
- When 2-port interface cards are adopted in an IRF virtual device with ports operating in the aggregation mode, ports of MOD 1 can only be connected to ports of MOD 2, and the locations of the ports of the interface cards are not limited.

Figure 3-32 Cable connections in an IRF virtual device in the aggregation mode with 2-port interface cards



- 1-port interface cards do not support port aggregation in the IRF virtual device. When 1-port interface cards are connected for an IRF virtual device, the port of MOD 1 can only be connected to the port on MOD 2, as shown by callout 1 in Figure 3-33; when a 1-port interface card is connected to a 2-port interface card for an IRF virtual device, the port of MOD 1 can only be connected to the right port of the 2-port interface card, as shown by callout 2 in Figure 3-33.

Figure 3-33 Cable connections for an IRF virtual device with 1-port interface cards



Verifying the Installation

- Check whether the selected power is the same as the power label on the switch;
- Check whether the ground wire is connected;
- Check whether the power cords are connected correctly;
- Check whether all the interface cables are routed indoors. If there are cables outdoors, check that the socket strip with lightning protection and lightning arresters for network ports have been correctly connected.

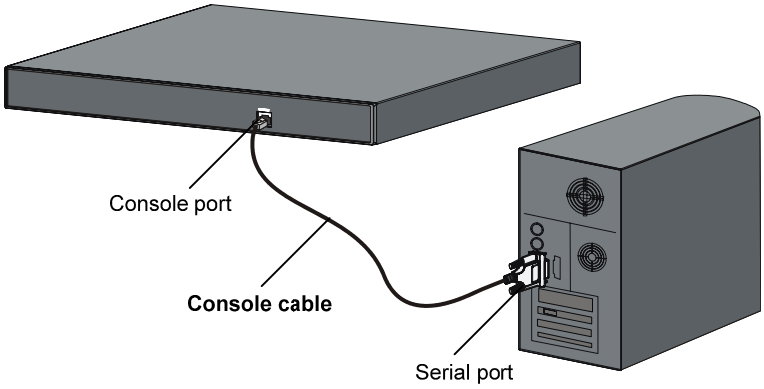
4 Starting and Configuring the Switch

Setting up the Configuration Environment

Set up the configuration environment as follows:

Connect a terminal (a PC in this example) to the console port on the switch with a console cable.

Figure 4-1 Network diagram for configuration environment setup



Connecting the Console Cable

Console Cable

A console cable is an 8-core shielded cable. One end of the cable is a crimped RJ-45 connector, which is connected to the console port of the switch, and the other end is a DB-9 female connector, which is connected to the serial port on the console terminal, as shown below.

Figure 4-2 Console cable

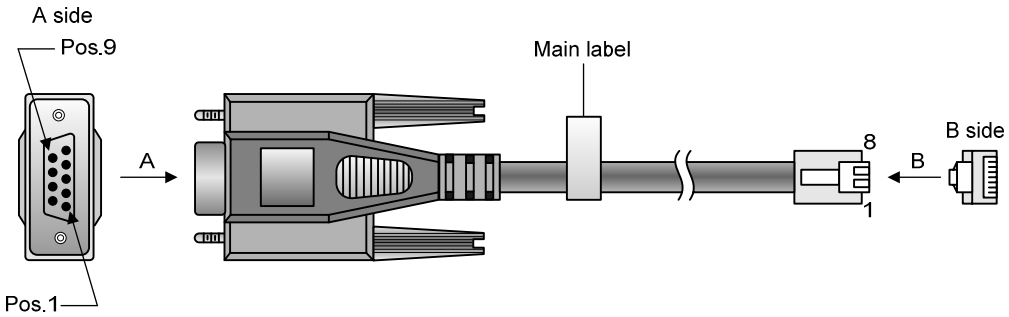


Table 4-1 Console cable pinouts

RJ-45	Signal	Direction	DB-9
1	RTS	←	7
2	DTR	←	4

RJ-45	Signal	Direction	DB-9
3	TXD	←	3
4	CD	→	1
5	GND	--	5
6	RXD	→	2
7	DSR	→	6
8	CTS	→	8

Connection Procedure

When you want to use the terminal to configure the switch, follow these steps to connect a terminal device to the switch by using the console cable:

Step1 Plug the DB-9 female connector of the console cable to the serial port of the console terminal or PC.

Step2 Connect the RJ-45 connector of the console cable to the console port of the switch.

Caution

Pay attention to the mark on the console port and be sure to plug the connector to the correct port.

Note

- When connecting a PC to a powered-on switch, you are recommended to connect the DB-9 connector of the console cable to the PC before connecting the RJ-45 connector to the switch.
- When disconnecting a PC from a powered-on switch, you are recommended to disconnect the DB-9 connector of the console cable from the PC after disconnecting the RJ-45 connector from the switch.

Setting Terminal Parameters

When setting up the configuration environment through the console port, the terminal or PC can use the terminal emulation program to communicate with the switch. You can run the HyperTerminal of the Windows operating system to connect to other PCs, network devices, and Telnet sites. For how to use the HyperTerminal, see the HyperTerminal Help documentation in Help and Support Center on the PC running the Windows operating system.

In the following configuration procedure, Windows XP HyperTerminal is used to communicate with the switch.

1) Start the PC and run the terminal emulation program.

2) Set terminal parameters as follows:

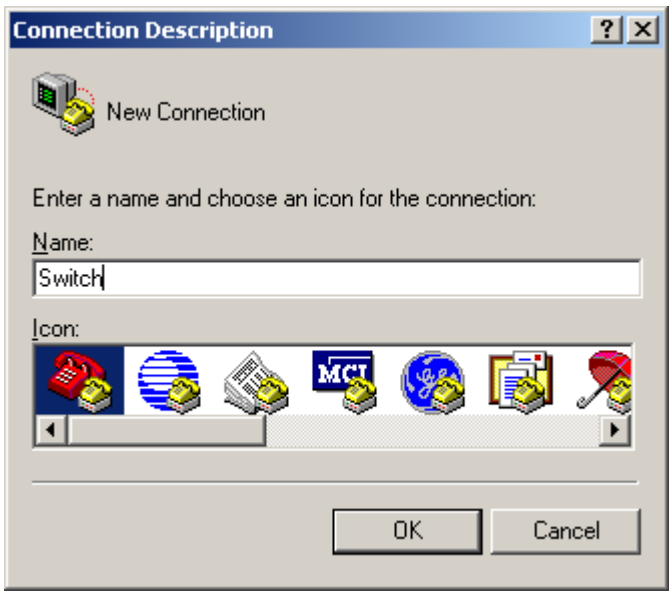
- Bits per second: 9,600

- Data bits: 8
- Parity: None
- Stop bits: 1
- Flow control: None
- Emulation: VT100

The specific procedure is as follows:

Step1 Select **Start** > **Programs** > **Accessories** > **Communications** > **HyperTerminal** to enter the HyperTerminal window. The **Connection Description** dialog box appears, as shown below.

Figure 4-3 Connection description of the HyperTerminal

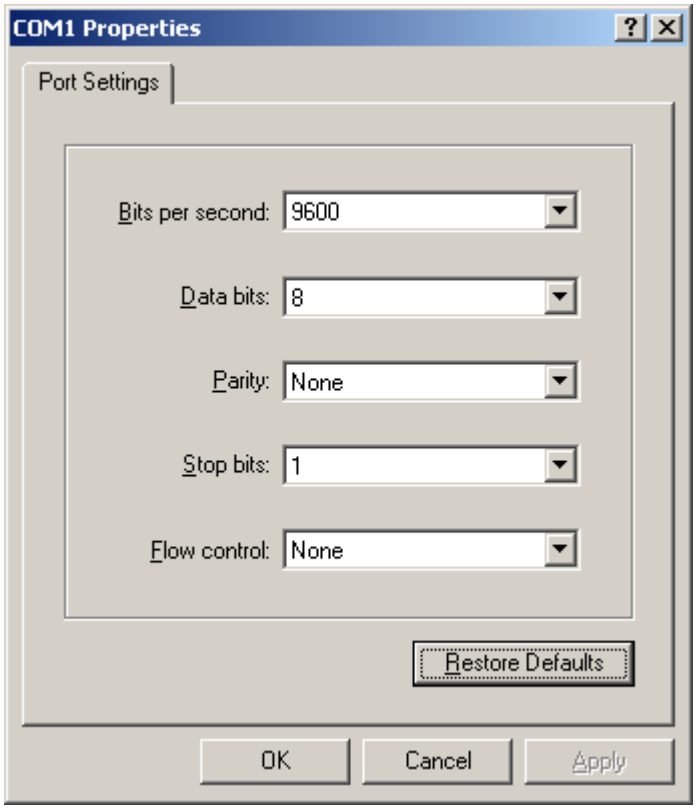


Step2 Type the name of the new connection in the **Name** text box and click **OK**. The following dialog box appears. Select the serial port to be used from the **Connect using** drop-down list.

Figure 4-4 Set the serial port used by the HyperTerminal connection

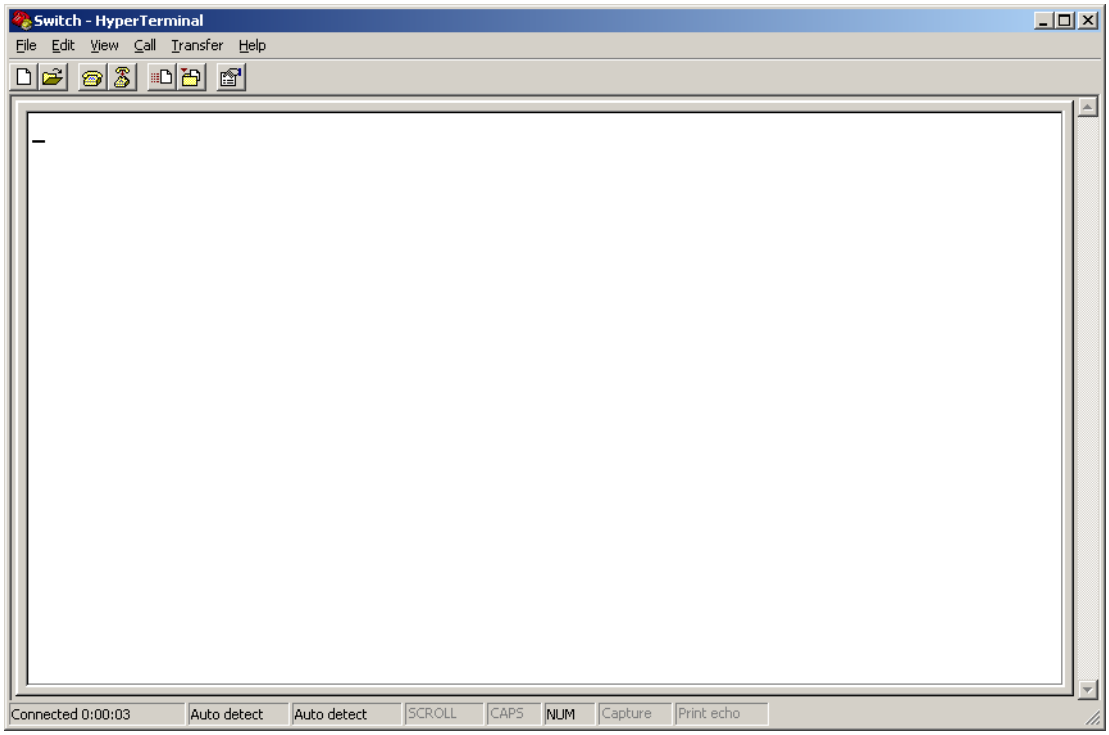
Step3 Click **OK** after selecting a serial port. The following dialog box appears. Set **Bits per second** to **9600**, **Data bits** to **8**, **Parity** to **None**, **Stop bits** to **1**, and **Flow control** to **None**.

Figure 4-5 Set the serial port parameters



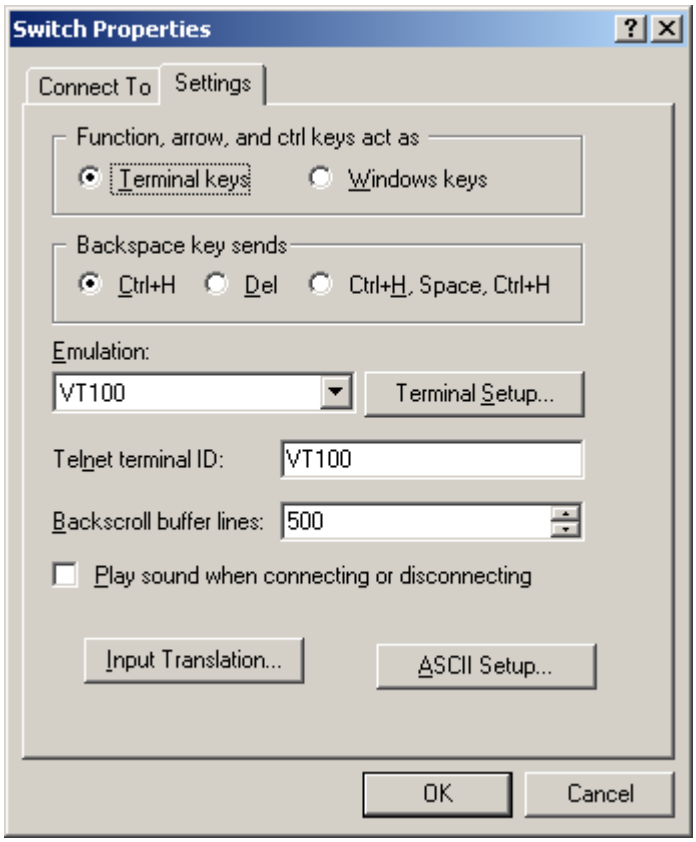
Step4 Click **OK** after setting the serial port parameters and the system enters the HyperTerminal window shown below.

Figure 4-6 HyperTerminal window



Step5 Click **Properties** in the HyperTerminal window to enter the **Switch Properties** dialog box. Click the **Settings** tab, set the emulation to **VT100**, and then click **OK**.

Figure 4-7 Set terminal emulation in **Switch Properties** dialog box



Booting the Switch

Checking before Powering on the Switch

Before powering on the switch, verify that:

- The power cord and ground cable are properly connected.
- The power supply voltage is consistent with that required by the switch.
- The console cable is properly connected; the terminal (which can be a PC) used for configuration has been started; and the configuration parameters have been set.

Powering on the Switch

All the S5120-EI series Ethernet switches have the same Boot ROM display style. This document uses the Boot ROM display of S5120-52C-PWR-EI as an example:

```
Starting......


          ************************************************************
          *                                                          *
          *        H3C S5120-52C-PWR-EI BOOTROM, Version 100         *
          *                                                          *
          ************************************************************
          Copyright (c) 2004-2009 Hangzhou H3C Tech. Co., Ltd.
          Creation date   : May  7 2009, 09:06:06
          CPU Clock Speed : 264MHz
          BUS Clock Speed : 33MHz
          Memory Size     : 128MB
          Mac Address     : 000fe2d258fb


Press Ctrl-B to enter Boot Menu... 1
```

The last line asks whether you want to enter the Boot Menu. The system waits one second for your response.

Note

- The system has two startup modes: normal startup and fast startup. The normal startup mode takes a little longer time than the fast startup mode because of more self-test operations.
- By default, the system starts up in fast startup mode and the waiting time here is one second. If you set the startup mode to normal, this waiting time is five seconds. For the setting of the startup mode, see the next section Changing the Startup Mode.

- If you press **Ctrl** + **B** within 1 second, the system displays:

```
Password :
```

Enter the correct Boot ROM password and click **Enter** to enter the Boot Menu. By default, no password is set and you can click **Enter** directly to enter the Boot Menu.

```
          BOOT  MENU

1. Download application file to flash
2. Select application file to boot
3. Display all files in flash
4. Delete file from flash
5. Modify bootrom password
6. Enter bootrom upgrade menu
7. Skip current configuration file
8. Set bootrom password recovery
9. Set switch startup mode
0. Reboot

Enter your choice(0-9):
```

Table 4-2 describes the fields above.

Table 4-2 Description on the fields

Item	Description
1. Download application file to flash	Download the application file to the flash memory
2. Select application file to boot	Select the application file to boot
3. Display all files in flash	Display all files in the flash memory
4. Delete file from flash	Delete files from the flash memory
5. Modify bootrom password	Modify the Boot ROM password
6. Enter bootrom upgrade menu	Enter the Boot ROM update menu
7. Skip current configuration file	Skip the current configuration file (this configuration is valid once)
8. Set bootrom password recovery	Restore the Boot ROM password
9. Set switch startup mode	Set the startup mode of the switch
0. Reboot	Restart the switch

- If you perform no operation or press a key other than **Ctrl** + **B** within one second, Once the remaining waiting time becomes zero, the system begins to automatically start up and the following information is displayed:

```
Auto-booting...
Decompress Image.....................................................
.....................................................................
.....................................................................
.....................................................................
.....................................................................
.....................................................................
.....................................................................
.....................................................................
.....................................................................
.....................................................................
```

```
..................................................................................
..................................................................................
..................................................................................
..................................................................................
..................................................................................
.....................................OK!

User interface aux0 is available.



Press ENTER to get started.
```

The appearance of "Press ENTER to get started" indicates that the automatic startup of the switch is complete.

Press **Enter**. The following prompt is displayed:

```
<H3C>
```

You can configure the switch now.

Changing the Startup Mode

By default, the system starts up in fast mode. If you want to change the startup mode to normal, press **Ctrl** + **B** within one second to enter the Boot Menu showed below:

```
          BOOT  MENU

1. Download application file to flash
2. Select application file to boot
3. Display all files in flash
4. Delete file from flash
5. Modify bootrom password
6. Enter bootrom upgrade menu
7. Skip current configuration file
8. Set bootrom password recovery
9. Set switch startup mode
0. Reboot

Enter your choice(0-9):
```

Enter **9**, and the system prompts you to change the startup mode:

```
The current mode is fast startup mode!
Are you sure you want to change it to full startup mode? Yes or No(Y/N)
```

Enter **Y**. The system displays the following information:

```
Setting startup mode...done!

          BOOT  MENU

1. Download application file to flash
2. Select application file to boot
3. Display all files in flash
4. Delete file from flash
5. Modify bootrom password
6. Enter bootrom upgrade menu
```

```
7. Skip current configuration file
8. Set bootrom password recovery
9. Set switch startup mode
0. Reboot

Enter your choice(0-9):
```

Enter **0**. The system reboots in normal mode and displays the following information:

```
Starting......


            ********************************************************
            *                                                      *
            *        H3C S5120-52C-PWR-EI BOOTROM, Version 100     *
            *                                                      *
            ********************************************************
            Copyright (c) 2004-2009 Hangzhou H3C Tech. Co., Ltd.
            Creation date   : May  7 2009, 09:06:06
            CPU Clock Speed : 264MHz
            BUS Clock Speed : 33MHz
            Memory Size     : 128MB
            Mac Address     : 000fe2d258fb


Press Ctrl-B to enter Boot Menu... 5
```

In normal startup mode, the waiting time here is five seconds. If you press **Ctrl + B** within five seconds, the Boot Menu is displayed. If you press **Ctrl + B** within five seconds, the Boot Menu is displayed: If you perform no operation or press a key other than **Ctrl + B** within five seconds, the system begins to automatically start up and the following information is displayed:

```
Auto-booting...
Decompress Image.....................................................
.....................................................................
.....................................................................
.....................................................................
.....................................................................
.....................................................................
.....................................................................
.....................................................................
.....................................................................
.....................................................................
.....................................................................
.....................................................................
.....................................................................
.....................................................................
.....................................................................
.....................................OK!


            Board checking.....................LSP1LTSUD
            SDRAM fast selftest.......................OK!
```

```
            Flash fast selftest.....................OK!
            CPLD selftest...........................OK!
            Switch chip selftest....................OK!
            PHY selftest............................OK!
            Please check leds.................FINISHED!

User interface aux0 is available.



Press ENTER to get started.
```

The appearance of "Press ENTER to get started" indicates that the automatic startup of the switch is complete.

Press **Enter**. The following prompt is displayed:

```
<H3C>
```

You can configure the switch now.

Note

The H3C Series switches provide abundant command views. For the configuration commands and CLI, see *H3C S5120-EI Series Ethernet Switches Configuration Guides* and *H3C S5120-EI Series Ethernet Switches Command References*.

---

5 Boot ROM and Host Software Loading

Traditionally, the loading of switch software is accomplished through the serial port. This approach is slow, inconvenient, and cannot be used for remote real-time loading. To resolve these problems, the TFTP and FTP modules are introduced into the switch. With these modules, the software and files can be loaded through Ethernet port conveniently.

This chapter introduces how to load Boot ROM and host software into a switch through the Boot ROM menu or the CLI.

Introduction to Loading Modes

Table 5-1 Approaches for loading software on the switch

Approach	Section
Loading files through the Boot ROM menu	Loading Software by Using XMODEM Through Console Port
	Loading Software by Using TFTP through Ethernet Port
	Loading Software by Using FTP Through Ethernet Port
Loading files through the CLI	Loading Software by Using FTP
	Loading Software by Using TFTP

Note

The Boot ROM software version must match the host software version when you load the Boot ROM and host software.

Loading Software Through the Boot ROM Menu

If your terminal is directly connected to the switch, you can load Boot ROM and host software locally.

Before loading the software, make sure that your terminal is correctly connected to the switch to insure successful software loading.

Boot Menu

```
Starting......


          ************************************************************
          *                                                          *
          *        H3C S5120-52C-PWR-EI BOOTROM, Version 100         *
          *                                                          *
```

```
            ********************************************************
            Copyright (c) 2004-2009 Hangzhou H3C Tech. Co., Ltd.
            Creation date   : May  7 2009, 09:06:06
            CPU Clock Speed : 264MHz
            BUS Clock Speed : 33MHz
            Memory Size     : 128MB
            Mac Address     : 000fe2d258fb


Press Ctrl-B to enter Boot Menu... 1
```

Press **Ctrl + B**. The system displays:

```
Password :
```

Note

To enter the Boot Menu, you must press **Ctrl + B** within one second after the information “Press Ctrl-B to enter Boot Menu...” appears. Otherwise, the system starts to decompress the program; and if you want to enter the Boot Menu at this time, you will have to restart the switch.

Input the correct Boot ROM password (by default, no password is set on the switch and you can click **Enter** directly). The system enters the Boot Menu:

```
          BOOT  MENU

1. Download application file to flash
2. Select application file to boot
3. Display all files in flash
4. Delete file from flash
5. Modify bootrom password
6. Enter bootrom upgrade menu
7. Skip current configuration file
8. Set bootrom password recovery
9. Set switch startup mode
0. Reboot

Enter your choice(0-9):
```

The items in the Boot ROM menu are described in Table 4-2.

Note

The loading process of the Boot ROM software is the same as that of the host software, except that during the Boot ROM loading process, you must enter the different digit after entering the Boot Menu and the system gives somewhat different prompts. The following text mainly describes the Boot ROM loading process.

Loading Software by Using XMODEM Through Console Port

Introduction to XMODEM

XMODEM is a file transfer protocol that is widely used due to its simplicity and good performance. XMODEM transfers files via console port. It supports two types of data packets (128 bytes), two check methods (checksum and CRC), and error packet retransmission mechanism (generally the maximum number of retransmission attempts is ten).

The XMODEM transmission procedure is completed by the cooperation of a receiving program and a sending program. The receiving program sends a negotiation packet to negotiate a packet check method. After the negotiation, the sending program starts to transmit data packets. When receiving a complete packet, the receiving program checks the packet by using the agreed method. If the check succeeds, the receiving program sends an acknowledgement packet and the sending program proceeds to send another packet; otherwise, the receiving program sends a negative acknowledgement packet and the sending program retransmits the packet.

Loading Boot ROM software

Complete the following tasks to update the Boot ROM software by using XMODEM through the console port (For more information about the HyperTerminal, see Setting Terminal Parameters on page 4-2):

Task	Remarks
Enter the Boot ROM update menu on the switch	Required Log in to the switch through the HyperTerminal and then configure the protocol used for loading files.
Configure the switch to download files by using XMODEM	
Set the download rate of the console port on the switch	Required Log in to the switch through the HyperTerminal and then set the download rate of the console port on the switch.
Change the rate of the serial port on the terminal	Optional Set the baud rate of the serial port on the terminal to be consistent with that of the console port on the switch.
Download the Boot ROM file	Required Transmit a file from the terminal to the switch, and update the Boot ROM file on the switch.
Restore the download rate to the default	Optional Set the baud rate of the serial port on the terminal to be consistent with the default rate of the console port on the switch.
Restart the switch to make the updated Boot ROM file effective	Required

1) Enter the Boot ROM update menu on the switch

Enter the Boot ROM menu, and then enter **6** or press **Ctrl** + **U** after the system displays “Enter your choice(0-9):” to enter the Boot ROM update menu.

```
Bootrom update menu:
1. Set TFTP protocol parameter
2. Set FTP protocol parameter
3. Set XMODEM protocol parameter
0. Return to boot menu
```

```
Enter your choice(0-3):
```

2) Configure the switch to download files by using XMODEM

Enter **3** in the above menu to load the Boot ROM and host software by using XMODEM protocol. The system displays the following download baud rate setting menu:

```
Please select your download baudrate:
1.* 9600
2. 19200
3. 38400
4. 57600
5. 115200
0. Return

Enter your choice (0-5):
```

3) Set the download rate of the console port on the switch

Select an appropriate download rate. For example, if you select 115200 bps, that is, enter **5**, the following information is displayed:

```
Download baudrate is 115200 bps
Please change the terminal's baudrate to 115200 bps and select XMODEM protocol
Press enter key when ready
```

Now that the console communication baud rate of the switch has been changed to 115200 bps while that of the terminal is still 9600 bps, the two sides cannot communicate with each other. According to the prompt, you need to change the baud rate of the terminal to 115200 bps.

Note

If you have chosen 9,600 bps, you do not need to modify the HyperTerminal's baud rate, and therefore you can skip step 4) below and proceed to step 5) directly.

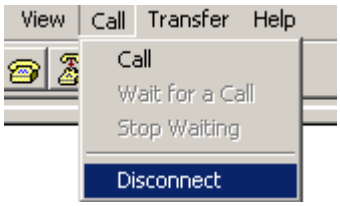
---

4) Change the rate of the serial port on the terminal

To ensure communication between the terminal and the switch, the baud rate of the serial port on the terminal should be consistent with that of the console port on the switch.

Step1 Select **Call** > **Disconnect** in the HyperTerminal window to disconnect the terminal from the switch.

Figure 5-1 Disconnect the terminal from the switch



Step2 Select **File** > **Properties**. In the **Properties** dialog box, click **Configure** (as shown in Figure 5-2), and then select **115200** from the **Bits per second** drop-down list box (as shown in Figure 5-3).

Figure 5-2 Properties dialog box

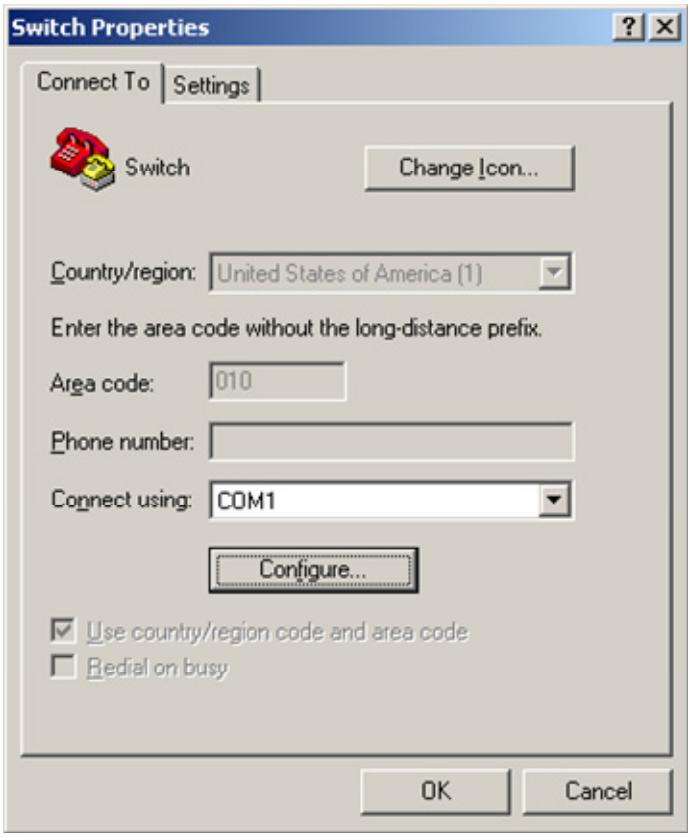
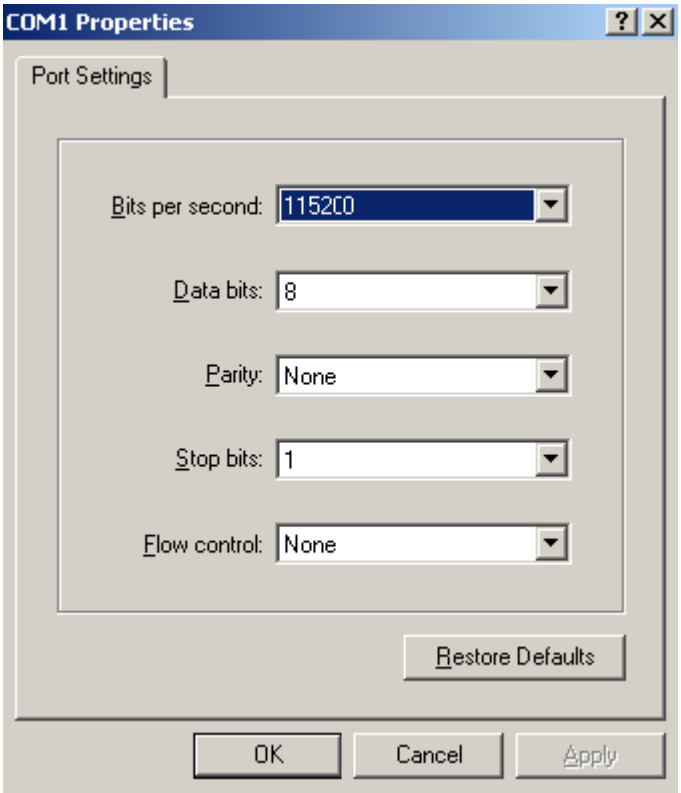
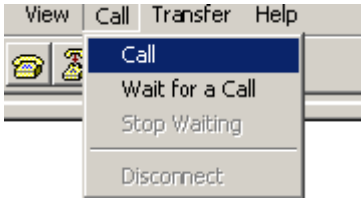


Figure 5-3 Modify the baud rate



Step3 Select **Call** > **Call** to reestablish the connection.

Figure 5-4 Reestablish the connection



Note

The new settings can take effect only after you reestablish the connection.

---

5) Download the Boot ROM file

Step1 Press **Enter** in the HyperTerminal window to start downloading the program. The system displays the following information:

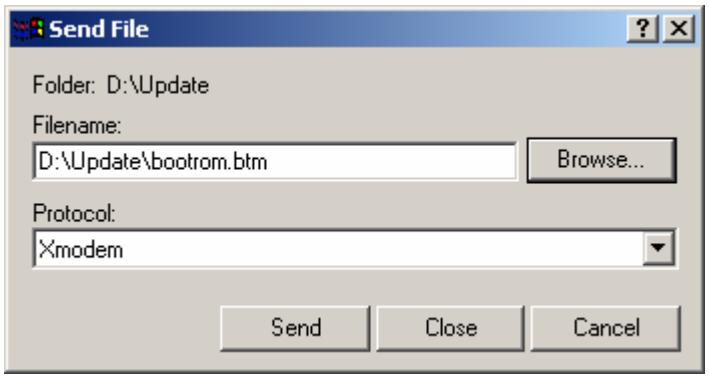
CCCCCCCCCCCCCCCCC

Note

Press **Ctrl** + **X** to quit downloading files; otherwise, proceed as follows.

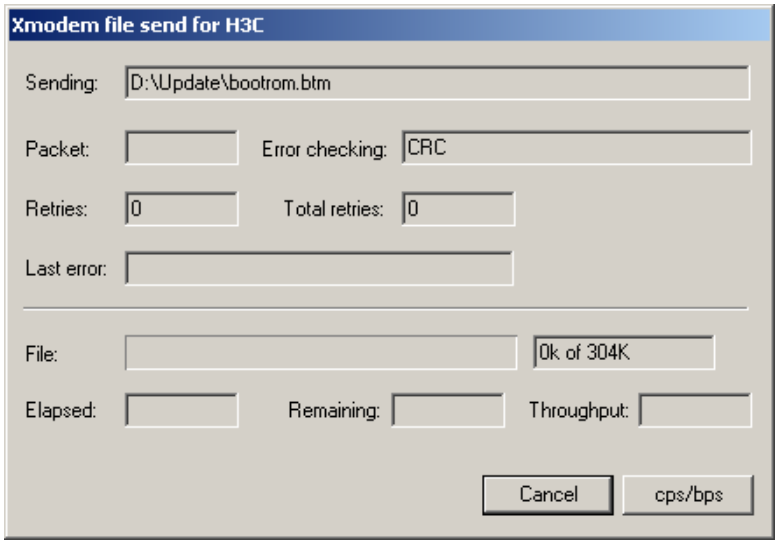
Step2 Select **Transfer** > **Send File** in the HyperTerminal's window. Click **Browse** in the pop-up dialog box (as shown in Figure 5-5) to select the application file to be downloaded (for example, **bootrom.btm**), and select **Xmodem** from the **Protocol** drop-down list.

Figure 5-5 Send file dialog box



Step3 Click **Send**. The following dialog box appears:

Figure 5-6 Page for file sending



After the Boot ROM file is downloaded, the terminal displays the following information:

```
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCdone!
Bootrom updating.........done!

Your baudrate should be set to 9600 bps again!
Press enter key when ready
```

Note

You do not need to reset the HyperTerminal's baud rate and can skip the last step if you have chosen 9600 bps. In this case, the system returns to the Boot ROM update menu directly instead of displaying the prompt "Your baudrate should be set to 9600 bps again! Press enter key when ready".

---

6) Restore the download rate to the default

Set the baud rate to 9600 bps (see Change the rate of the serial port on the terminal on page 5-4 for detailed operation).

7) Restart the switch to make the updated Boot ROM file effective

Press **Enter** in the HyperTerminal window to return to the Boot ROM update menu.

```
  BOOT  MENU

1. Download application file to flash
2. Select application file to boot
3. Display all files in flash
4. Delete file from flash
5. Modify bootrom password
6. Enter bootrom upgrade menu
7. Skip current configuration file
8. Set bootrom password recovery
9. Set switch startup mode
```

```
0. Reboot

Enter your choice(0-9):
```

Enter **0** to restart the device. After that, the updated Boot ROM file becomes effective.

Loading host software

Step 1: Select **1** in Boot Menu to load the host software of the switch. The system displays the following information:

```
1. Set TFTP protocol parameter
2. Set FTP protocol parameter
3. Set XMODEM protocol parameter
0. Return to boot menu
Enter your choice(0-3):3
```

To load the host software through XMODEM, select **3**.

The subsequent steps are almost the same as those for loading the Boot ROM software, except that the system gives the prompt for host software loading instead of Boot ROM loading.

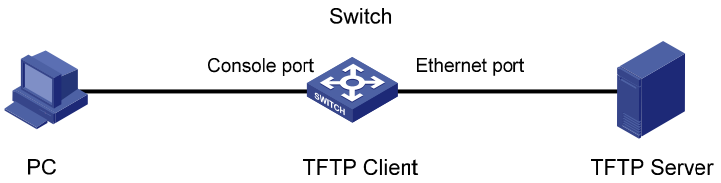
Loading Software by Using TFTP through Ethernet Port

Introduction to TFTP

Trivial file transfer protocol (TFTP), a protocol in TCP/IP protocol suite, is used for trivial file transfer between client and server. It uses UDP to provide unreliable data stream transfer service.

Loading Boot ROM software

Figure 5-7 Load Boot ROM software through TFTP



Step1 As shown in Figure 5-7, connect the switch through an Ethernet port to the TFTP server, and connect the switch through the console port to the configuration PC.

Note

You can use one PC as both configuration device and TFTP server.

Step2 Run the TFTP server program on the TFTP server, and specify the path of the program to be loaded.

Caution

TFTP server program is not provided with the H3C Series switches.

Step3 Run the terminal emulation program on the configuration PC. Start the switch. Then enter the Boot Menu. At the prompt "Enter your choice(0-9):" select **6** in the Boot Menu and then press **Enter** to enter the Boot ROM update menu shown below:

```
Bootrom update menu:
1. Set TFTP protocol parameter
2. Set FTP protocol parameter
3. Set XMODEM protocol parameter
0. Return to boot menu

Enter your choice(0-3):
```

Step4 Select **1** in the Boot ROM update menu to download the Boot ROM software by using TFTP. Then set the following TFTP-related parameters as required:

```
Load File name           :S5120-EI.btm
Switch IP address        :1.1.1.2
Server IP address        :1.1.1.1
```

Step5 Press **Enter** after inputting the information above. The system displays the following information:

```
Are you sure you want to update your bootrom? Yes or No(Y/N)
```

Step6 Enter **Y** to start file downloading or **N** to return to the Boot ROM update menu. If you enter **Y**, the system begins to download and update the Boot ROM software. Upon completion, the system displays the following information to show the loading process is completed:

```
Loading.....................................done
Bootrom updating.........done!

  BOOT  MENU

1. Download application file to flash
2. Select application file to boot
3. Display all files in flash
4. Delete file from flash
5. Modify bootrom password
6. Enter bootrom upgrade menu
7. Skip current configuration file
8. Set bootrom password recovery
9. Set switch startup mode
0. Reboot

Enter your choice(0-9):
```

Step7 Enter **0** to restart the device. After that, the updated Boot ROM file becomes effective.

Loading host software

Select **1** in Boot Menu to load the host software of the switch. The system displays the following information:

```
1. Set TFTP protocol parameter
2. Set FTP protocol parameter
3. Set XMODEM protocol parameter
0. Return to boot menu

Enter your choice(0-3):1
```

To load the host software through XMODEM, select **1**.

The subsequent steps are almost the same as those for loading the Boot ROM software, except that the system gives the prompt for host software loading instead of Boot ROM loading.

Loading Software by Using FTP Through Ethernet Port

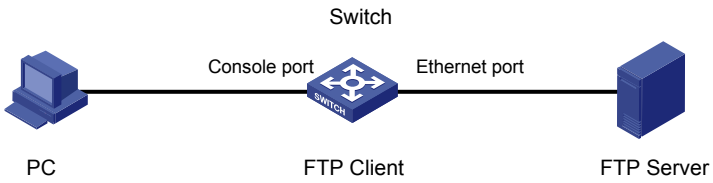
Introduction to FTP

File transfer protocol (FTP) is an application-layer protocol in the TCP/IP protocol suite. It is used for transferring files between server and client, and is widely used in IP networks.

You can use FTP to load software onto the switch through an Ethernet port. In this case, the switch can act as an FTP server or an FTP client. In the following example, the switch acts as an FTP client.

Loading Boot ROM software

Figure 5-8 Load Boot ROM software through FTP



Step1 As shown in Figure 5-8, connect the switch through an Ethernet port to the FTP server, and connect the switch through the console port to the configuration PC.

Note

You can use one PC as both configuration device and FTP server.

Step2 Run the FTP server program on the FTP server, configure an FTP user name and password, and specify the path of the program to be downloaded.

Step3 Run the terminal emulation program on the configuration PC. Start the switch. Then enter the Boot Menu.

At the prompt "Enter your choice(0-9):" select **6** in the Boot Menu, and then press **Enter** to enter the Boot ROM update menu shown below:

```
Bootrom update menu:

1. Set TFTP protocol parameter
2. Set FTP protocol parameter
3. Set XMODEM protocol parameter
0. Return to boot menu

Enter your choice(0-3):
```

Step4 Enter **2** in the above menu to download the Boot ROM software by using FTP. Then set the following FTP-related parameters as required:

```
Load File name           :S5120-EI.btm
Switch IP address        :10.1.1.2
Server IP address        :10.1.1.1
```

```
FTP User Name           :S5120-EI
FTP User Password       :123
```

Step5 Press **Enter** after inputting the information above. The system displays the following information:

```
Are you sure you want to update your bootrom? Yes or No(Y/N)
```

Step6 Enter **Y** to start file downloading or **N** to return to the Boot ROM update menu. If you enter **Y**, the system begins to download and update the program. Upon completion, the system displays the following information:

```
Loading.....................................done
Bootrom updating.........done!


  BOOT  MENU

1. Download application file to flash
2. Select application file to boot
3. Display all files in flash
4. Delete file from flash
5. Modify bootrom password
6. Enter bootrom upgrade menu
7. Skip current configuration file
8. Set bootrom password recovery
9. Set switch startup mode
0. Reboot

Enter your choice(0-9):
```

Step7 Enter **0** to restart the device. After that, the updated Boot ROM file becomes effective.

Loading host software

Select **1** in Boot Menu to load the host software of the switch. The system displays the following information:

```
1. Set TFTP protocol parameter
2. Set FTP protocol parameter
3. Set XMODEM protocol parameter
0. Return to boot menu

Enter your choice(0-3):2
```

To load the host software through FTP, select **2**.

The subsequent steps are almost the same as those for loading the Boot ROM software, except that the system gives the prompt for host software loading instead of Boot ROM loading.

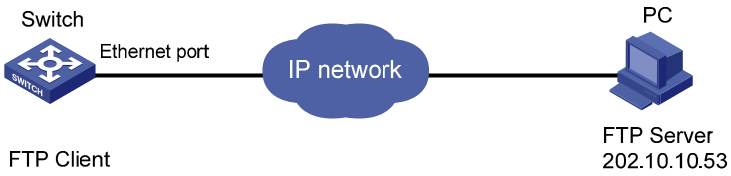
Loading Software Through CLI

You can telnet to the switch, and use FTP or TFTP to load Boot ROM and host software remotely.

Loading Software by Using FTP

As shown in Figure 5-9, a PC is used as both configuration device and FTP server. You can telnet to the switch, and then execute the FTP commands to download the host program S5120-EI.bin and the Boot ROM program S5120-EI.btm from the remote FTP server (with IP address 202.10.10.53) to the switch.

Figure 5-9 Load software by using FTP/TFTP remotely



Step1 Download the software to the switch by using FTP commands.

```
<H3C> ftp 202.10.10.53
Trying ...
Press CTRL+K to abort
Connected.
220 WFTPD 2.0 service (by Texas Imperial Software) ready for new user
User(none):S5120-EI
331 Give me your password, please
Password:
230 Logged in successfully
[ftp] get S5120-EI.bin
[ftp] get S5120-EI.btm
[ftp] bye
```

Step2 Update the Boot ROM program on the switch.

```
<H3C> bootrom update file S5120-EI.btm
 This command will update BootRom file, Continue? [Y/N]y
 Updating BootRom, please wait...
Upgrade Bootrom succeeded!
```

Step3 Update the host software on the switch.

```
<H3C> boot-loader file S5120-EI.bin
<H3C> display boot-loader
 The current boot app is:  flash:/ S5120-EI.bin
 The main boot app is:     flash:/ S5120-EI.bin
 The backup boot app is:   flash:/ S5120-EIbak.bin
```

Step4 Restart the switch to make the updated host software and the Boot ROM file effective.

```
<H3C> reboot
```

Note

Before restarting the switch, make sure other configurations are all saved to avoid the loss of configuration information.

After the steps above, the Boot ROM and host software loading is completed.

Pay attention to the following points:

- Host software loading takes effect only after you restart the switch with the reboot command.
- If the space of the flash memory is not enough, you can delete the useless files in the flash memory before software downloading.
- Power interruption is not allowed during software loading.

Loading Software by Using TFTP

The remote loading by using TFTP is similar to the remote loading by using FTP. The only difference is that it is TFTP that you use when loading software to the switch. In this case, the switch can only be used as a TFTP client.

6 Maintenance and Troubleshooting

Software Loading Failure

If software loading fails, the system keeps running in original version. In this case, check if the physical ports are properly connected.

- If the ports are not properly connected, reconnect them correctly and restart the loading procedure.
- If the ports are properly connected, check the loading procedure information displayed on the HyperTerminal for input errors. If there is any input error, restart the loading procedure with correct input.

For example, when using XMODEM, verify that you have reset the baud rate of the HyperTerminal to 9,600 bps after loading the software with a baud rate other than 9,600 bps; when using TFTP, verify that you have specified the correct server and switch IP addresses, the correct name of the software to be loaded and the correct working path of TFTP server; when using FTP, verify that you have specified the correct server and switch IP addresses, the correct name of the software to be loaded and the correct username and password.

If software loading fails but there are neither physical connection problems nor input errors, please contact your agent for help. Missing Password

Password Missing Failure

Missing User Password

If you have forgotten your user password, you can enter the Boot Menu:

```
       BOOT  MENU

1. Download application file to flash
2. Select application file to boot
3. Display all files in flash
4. Delete file from flash
5. Modify bootrom password
6. Enter bootrom upgrade menu
7. Skip current configuration file
8. Set bootrom password recovery
9. Set switch startup mode
0. Reboot

Enter your choice(0-9):
```

Select 7, and then restart the switch. After the switch is restarted, the user password is removed.

Missing Boot ROM Password

Please contact with your switch dealer.

Power Supply Failure

The S5120-EI series switches use fixed power modules. Each of these fixed power modules has three input modes, namely, AC input, RPS input and both.

You can check whether the power system of the switch fails by viewing the system status LED (PWR) and RPS status LED (RPS) on the front panel of the switch. For relevant information, see Table 6-1.

Table 6-1 Fixed power module failure LEDs description

LED	Mark	Status	Description
System status LED	PWR	Off	The switch is powered off.
RPS status LED (S5120-28C-EI/ S5120-52C-EI/ S5120-24P-EI/ S5120-48P-EI)	RPS	Steady green	The AC input is normal, and the RPS is in the position or works normally.
		Steady yellow	RPS input is normal, but AC input fails or AC input is not connected.
		Off	RPS is not connected.
RPS status LED (S5120-28C-PWR-EI/ S5120-52C-PWR-EI)	RPS	Steady green	The AC input and the RPS input work normally.
		Steady yellow	The RPS input is normal, but the AC input fails or AC input is not connected.
		Off	RPS input is abnormal.

AC input

When the switch adopts AC input, you can check the power supply status by viewing the system status LED. If the system status LED is off, an AC input failure occurs. Then do the following:

- Check whether the AC power cord is well connected to the switch, whether the AC receptacle on the switch and the AC power socket are faulty.
- Check whether the external AC power supply system is normal.
- Check whether the operating temperature of the switch is normal, and whether good ventilation is provided to the power supply (the power module may stop working and enter the protection state due to over-temperature).

RPS input

When the switch adopts RPS input, you can check the power supply status by viewing the system status LED or RPS status LED. If the system status LED or RPS status LED is off, an RPS input failure occurs. Then do the following:

- Check whether the switch is well connected to the external RPS power supply.
- Check whether the external RPS power supply works normally.
- Check whether the operating temperature of the switch is normal, and whether good ventilation is provided to the power supply (the power module may stop working and enter the protection state due to over-temperature).

RPS&AC input

When the switch adopts both RPS and AC inputs, you can check the power supply status and the input status of each line by viewing the system status LED and RPS status LED.

1) The system status LED is off.

Both the AC input and RPS input are faulty. Then do the following:

- Check whether the AC power cord is well connected to the switch, whether the AC receptacle on the switch and the AC power socket are faulty.
- Check whether the AC external power supply system is normal.
- Check whether the switch is well connected to the external RPS power supply.
- Check whether the external RPS power supply works normally.
- Check whether the operating temperature of the switch is normal, and whether good ventilation is provided to the power supply (the power module may stop working and enter the protection state due to over-temperature).

2) The system status LED is on but the RPS status LED is steady yellow.

An AC input failure occurs. Then do the following:

- Check whether the AC power cord is well connected to the switch, whether the AC receptacle on the switch and the AC power socket are faulty.
- Check whether the AC external power supply system is normal.

3) The system status LED is on but the RPS status LED is off.

An RPS input failure occurs. Then do the following:

- Check whether the switch is well connected to the external RPS power supply.
- Check whether the external RPS power supply works normally.

Note

If the cause cannot be located in the preceding steps and the problem persists, you need to contact your local sales agent or service engineer.

Fan Failure

You can check the system status LED and the seven-segment LED of an S5120-EI series to determine whether the fans operate normally. If a fan failure occurs, the two LEDs give an indication, as shown in Table 6-2.

Table 6-2 Fan failure LEDs description

LED	Mark	State
System status LED	PWR	Steady red
Seven-segment LED	Unit	The LED flashes **F** for fan failure.

Note

Only when the system status LED is steady red and the seven-segment LED is displayed as F does it indicate a fan failure.

The S5120-EI series switches use fixed fans. If a fixed fan failure occurs, you cannot solve the problem by yourself. Please contact your sales agent or service engineer.

Note

To ensure the normal operation of the switch, you need to contact the local sales agent or service engineer as soon as possible when a fixed fan failure occurs.

Configuration System Failure

After the switch is powered on and the system is normal, the booting information will be displayed on the configuration terminal. If the configuration system has any faults, there will not be any screen display at the configuration terminal or the displayed characters will be totally illegible.

Troubleshooting when there is no terminal display

If there is no output information after the configuration is powered on, please check whether:

- The power supply is normal
- The console cable is properly connected

If no problems are found after the above-mentioned items have been checked, the cause may lie in the console cable or the settings of the terminal (such as hyper terminal) parameters. Please perform the corresponding check.

Troubleshooting when the terminal display is illegible

If there is illegible display at the configuration terminal, the cause might lie in the parameter setting error at the terminal (such as HyperTerminal). Verify the following terminal parameter (such as hyper terminal) settings:

- Baud rate: 9,600
- Data bits: 8
- Parity: none
- Stop bits: 1
- Flow control: none
- Terminal emulation: VT100.

7 Appendix A Lightning Protection of the Switch

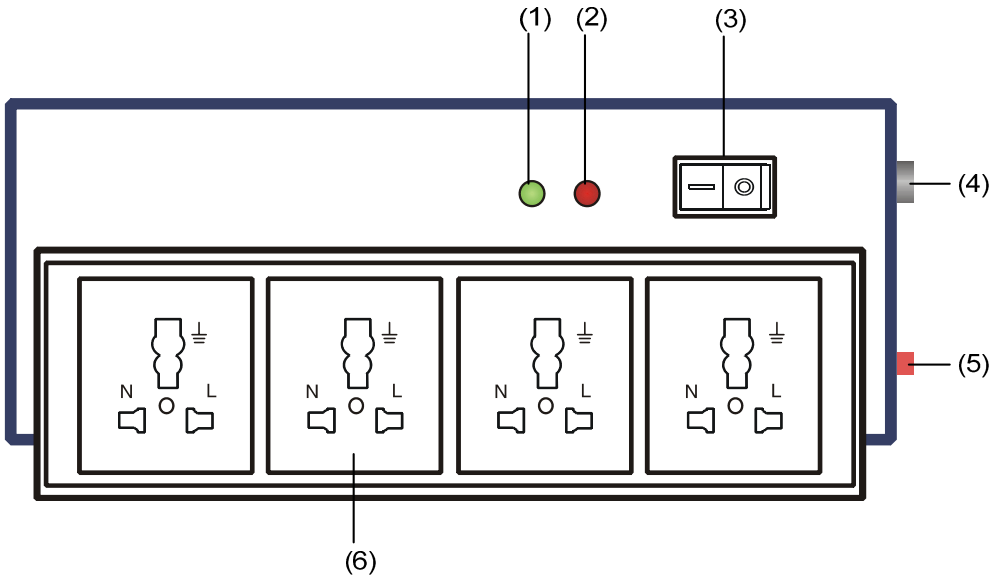
Installation of Lightning Arrester for AC Power (Socket Strip with Lightning Protection)

Caution

Lightning arrester will not be shipped with the switch. You should purchase it by yourself if needed.

If an outdoor AC power cord should be directly led to the switch, please serially connect the lightning arrester for AC power (Socket Strip with Lightning Protection) before you plug AC power cord into the switch, thus to prevent the possible damage to the switch due to lightning strike. You can use cable clips and screws to fasten the lightning arrester for AC power on the cabinet, workbench or the wall of equipment room.

Figure 7-1 Diagram of lightning arrester



(1) Working LED (green)	On means the circuit is working normally; off means the circuit is damaged.
(2) Grounding/pole detection LED (red)	On indicates a wrong wire connection (the wire is not grounded or the live line and null line are reversely connected), and you need to check the power supply line.
(3) Power switch	
(4) IEC standard socket	It is used to connect to the power supply in the equipment room through a power cord.
(5) Overload automatic protector	It can reset automatically.
(6) Multifunctional socket	It is used to connect the power module of the device.

Caution

- Make sure that the arrester is well grounded before using the lightning arrester for power.
- After inserting AC power cord plug of switch into the socket of lightning arrester, if the green LED is on and the red LED does not alarm, it means that the lightning arrester of power is running and the function of lightning protection has taken effect.
- Pay adequate attention if the red LED is on. You should correctly locate the problem, whether it is caused because the ground wire of the arrester is not well grounded or because the live and zero wires are connected in reverse direction. You may check that in the following way. When the red LED is on, use a multimeter to examine polarity at the power socket of the arrester. If it is same to that of the power socket in the equipment room, it means that arrester is not well grounded. If it is adverse to that of the power socket in the equipment room, it means that the power socket of the arrester is set to the reverse polarity. In this case, you should open the power socket of arrester to correct polarity. After that, if the red LED still alarms, it means that the arrester is not well grounded yet.

8 Appendix B Compliance and Safety Manual

Regulatory Compliance Information

Regulatory compliance standards

Table 8-1 Regulatory compliance standards

Discipline	Standards
EMC	FCC Part 15 (CFR 47) CLASS A ICES-003 CLASS A VCCI-3 CLASS A VCCI-4 CLASS A CISPR 22 CLASS A EN 55022 CLASS A AS/NZS CISPR22 CLASS A CISPR 24 EN 55024 EN 61000-3-2 EN 61000-3-3 EN 61000-6-1 ETSI EN 300 386 GB 9254 YD/T993
Safety	UL 60950-1 CAN/CSA C22.2 No 60950-1 IEC 60950-1 EN 60950-1/A11 AS/NZS 60950-1 EN 60825-1 EN 60825-2 FDA 21 CFR Subchapter J GB 4943

European Directives compliance

LVD/EMC Directive

S5120-EI SERIES products comply with the European Low Voltage Directive 2006/95/EC and EMC Directive 2004/108/EC.

A copy of the signed Declaration of Conformity can be downloaded from:

http://www.h3c.com/portal/Technical_Documents.

WEEE Directive–2002/96/EC

The products this manual refers to are covered by the Waste Electrical & Electronic Equipment (WEEE) Directive and must be disposed of in a responsible manner.

USA regulatory compliance

FCC Part 15

S5120-EI SERIES comply with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

If the customer modifies the equipment without the authorization of H3C, which directly or indirectly contribute to the equipment incompliance with FCC requirements for Class A digital devices, H3C is not liable for such interference problem and the expenses incurred therefrom shall be covered by the customers.

Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FDA

S5120-EI SERIES Conform to the applicable requirements of 21 CFR Subchapter J

Canada regulatory compliance

ICES-003

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Japan regulatory compliance

VCCI

S5120-EI SERIES comply with the requirements of VCCI Class A Information Technology Equipment (ITE).

Warning: If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions.

CISPR 22 compliance

S5120-EI SERIES comply with the requirements of CISPR 22 for Class A Information Technology Equipment (ITE).

Warning: If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions.

产品符合 CLASS A 声明

声明

此为 A 级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对其干扰采取切实可行的措施。

Safety Information Sicherheits informationen安全信息

Overview Überblick 概述

This section introduces part of the safety precautions that should be followed during the installation and maintenance of the equipment. And for the safety statements and warnings, there followed the translations of both German and Chinese to comply with the national requirements.

Dieser Abschnitt macht Sie mit den Sicherheitsvorschriften vertraut, die Sie bei der Installation und Instandhaltung der Ausrüstung beachten müssen.

本章节介绍了在安装、日常维护本系列设备时，必须遵循的安全预防规范。

Note

- Before any operation is performed, please read the operation instructions and precautions carefully to minimize the possibility of accidents. The **Note, Caution, Warning and Danger** items in other manuals do not cover all safety precautions that should be followed. They are only the supplements to the safety precautions for operations as a whole. Therefore, the personnel in charge of the installation and maintenance of the products are required to understand these basics of safety operation.
- In performing various operations, please follow the local safety regulations. The safety precautions introduced in the product manuals are supplementary and subject to the local safety regulations.
- When various operations are executed on the products, the precautions and special safety instructions provided with the products must be followed to the full.
- The personnel in charge of the installation and maintenance of the products must be trained as professionals to master the proper operating methods and all safety precautions. Only the trained and qualified personnel can perform operations such as equipment installation and maintenance.

Anmerkung

- Lesen Sie bitte alle Arbeitsanweisungen und Sicherheitvorschriften sorgfältig durch, bevor Sie mit dem Arbeiten beginnen. Nur durch Beachtung dieser Hinweise lässt sich das Unfallrisiko minimieren. Die in anderen Handbüchern aufgeführten Symbole **Anmerkung**, **Achtung**, **Warnung** und **Gefahr** beinhalten nicht alle zu beachtenden Sicherheitvorschriften. Sie dienen lediglich der Ergänzung. Deshalb muss sich das für die Installation und Instandhaltung der Ausrüstung verantwortliche Personal mit allen Sicherheitshinweise vertraut machen.
- Bei der Durchführung der verschiedenen Arbeitsschritte müssen außerdem die örtlichen Sicherheitsvorschriften beachtet werden. Die in den Handbüchern der einzelnen Produkte aufgeführten Sicherheitshinweise sind Ergänzungen und unterliegen den nationalen Sicherheitsvorschriften.
- Während der Arbeit mit den Produkten sind deshalb grundsätzlich alle Sicherheitsvorschriften und spezifischen Sicherheitshinweise genau zu beachten.
- Das für die Installation und Instandhaltung der Produkte verantwortliche Pesonal muss geschult werden, um alle Sicherheitsvorschriften zu kennen und die richtigen Arbeitsmethoden anwenden zu können. Nur geschultes und qualifiziertes Personal kann die Installation und Instandhaltung in korrekter Weise durchführen.

说明

- 为了避免可能发生的事故，请在进行任何操作前，仔细阅读设备操作手册和本章节的安全规范。手册中 出现的**说明、注意、警告、危险**，不能涵盖所有的安全预防，仅仅是在整个操作过程中的安全提示和补充。因此，负责安装和日常维护本设备的人员必须具备安全操作基本技能。
- 操作人员要按照当地的安全规范进行操作。出现在产品手册中的安全预防措施仅仅是当地安全规范的补充。
- 在操作本设备时，请认真执行产品手册规定的安全规范。
- 设备安装、维护人员必须通过专业培训，并且掌握足够的操作技能和安规预防意识。只有专业人员才能担任本设备的安装和维护工作。

Conventions Used Symbole Erläuterung 应用惯例

The symbols in this manual are shown in the following table. They are used to remind the reader of the safety precautions during equipment installation and maintenance.

Die Symbole in diesem Handbuch verwendeten sind in der folgenden Tabelle dargestellt. Diese Symbole sollen das Personal während der Installation und Instandhaltung der Ausrüstung an die Wichtigkeit der im Handbuch aufgeführten Sicherheitsvorschriften erinnern.

以下表格中的安全标识，是用来提示读者在进行设备安装和维护时的安全预防要求。

Table 8-2 Safety symbol and description

Sicherheitssymbole und Beschreibung 安全标识和描述

Safety Symbol Symbole 安全标识	Description Erläuterung 描述
	Generic alarm symbol: To suggest a general safety concern Alarm: Hinweis auf ein generelles Sicherheitsproblem 一般注意标识：用于一般安全提示
	ESD protection symbol: To suggest electrostatic-sensitive equipment. ESD-Schutz: Hinweis auf Beschädigung infolge elektrostatischer Entladung 防静电标识：用于表示静电敏感的设备
	Electric shock symbol: To suggest a danger of high voltage Elektrischer Schlag: Hinweis auf Gefährdung durch Hochspannung 电击防护标识：用于表示高压危险
	Laser symbol: To suggest a strong laser beam Laser: Hinweis auf starken Laser 激光辐射标识：用于表示强激光辐射

General Requirements Allgemeine Anforderungen 通用要求

In order to reduce the technically unavoidable residual risk to a minimum, it is imperative to follow the rules below:

Um das technisch bedingte Restrisiko auf ein Minimum zu begrenzen, ist es unbedingt erforderlich, die folgenden Regeln zu beachten:

为了避免对人和设备造成伤害，请认真执行下列要求：

- Read all the instructions before operation.
- Lesen Sie alle Anweisungen sorgfältig durch, bevor Sie mit dem Arbeiten beginnen.
- 在进行操作前仔细阅读手册内容。
- When installing the unit, always make the ground connection first and disconnect it last.
- Beachten Sie, dass bei der Installation des Systems stets zuerst die Erdverbindung angebracht wird und das die Erdverbindung stets als letztes getrennt wird.
- 进行设备安装时，必须确保接地连接是最先连接和最后断开。
- Do not block ventilation openings while the system is on, and keep at least 5 cm distance from ventilation openings and walls or other things which may block the openings.
- Sorgen Sie dafür, dass die Öffnungen der Ventilation zu keinem Zeitpunkt verschlossen, verstopft oder anderweitig blockiert sind. Zwischen den Ventilationsöffnungen und Wänden bzw. anderen Gegenständen muss stets ein Abstand von mindestens 5cm bestehen.
- 设备在工作时必须确保通风口的畅通，确保设备离墙壁或是其它的可能堵塞通风口的物体的间距至少 5cm。
- Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection.
- Betreiben Sie die Ausrüstung niemals ohne Erdung. Trennen Sie das System nicht von der Erdung. Kontaktieren Sie die entsprechende elektrische Kontrolle.
- 不允许破坏设备的接地导线或是在无接地连接的情况下操作设备，要进行适当的电气检查。
- The unit/system must be connected to the protection ground before operation permanently. And the cross-section of protective earthing conductor shall be at least 0.75mm^2
- Das System muss vor der ständigen Inbetriebnahme geerdet werden. Der Querschnitt der Erdverbindung sollte mindestens 0.75mm^2 betragen.
- 进行设备/系统操作前，请确保永久接地，并且用于进行保护接地连接的接地线截面不小于 0.75mm^2。
- For AC supplied model: The device applies to TN power systems.
- Mit Wechselstrom betriebenes Modell: Das Gerät arbeitet mit einem Phase-Nullleiter-System.
- AC 电源输入：此设备用于 TN 电源系统。
- For DC supplied model: The device applies to DC power source that complies with the Safety Extra-Low Voltage (SELV) requirements in IEC 60950 based safety standards.
- Mit Gleichstrom betriebenes Modell: Das Gerät arbeitet mit Gleichstrom, wobei die Anforderungen der Norm (IEC60950) für Schutzkleinspannung eingehalten werden müssen.
- DC 电源输入：设备使用满足 IEC60950 安规标准的安全超低电压(SELV)电源。
- For AC supplied model: The plug-socket combination must be accessible at all times because it serves as the main disconnecting device.
- Mit Wechselstrom betriebenes Modell: Der Netzstecker muss jederzeit leicht zugänglich sein. Denn sie dient als wichtigstes Trennvorrichtung.
- AC 供电：插座必须随时可用，因为它是主要的切断电源装置。
- Because the device has several power supplies, disconnect all of them to switch off the device.
- Da das Gerät mehrere Energiequellen hat, ist es notwendig stets alle Verbindungen zu unterbrechen, um den energiefreien Zustand zu erreichen.
- 因为设备存在多种电源输入，在关闭设备时确保切断所有电源连接。

- To prevent laser radiation from hurting your eyes, never stare into the open optical port.
- Nehmen Sie das Gerät nicht in Betrieb, solange das optische Fenster nicht geschlossen ist. Der Laserstrahl kann zu Augenverletzungen führen.
- 为了避免光纤发出的高能量的激光光束伤害到视网膜，请不要直视光接口。
- H3C S5120-EI may be powered by a DC RPS, if the Customer need the DC power source, the DC RPS power source must be supplied by H3C company.
- Einige H3C S5120-EI Switches können durch eine DC RPS Energiequelle angetrieben werden, aber die DC RPS Energiequelle muß von H3C geliefert werden.
- 一些 S5120-EI 交换机可以使用 DC RPS 电源供电，如果用户希望使用 DC RPS 电源为设备供电，那么必须向 H3C 购买指定型号的 DC RPS 电源。

Electricity Safety Elektrische Sicherheit 用电安全

High Voltage Hochspannung 高电压

Danger

High voltage power supply offers electric power for equipment operation. Direct contact or indirect contact (via damp objects) with high voltage and AC mains supply may result in fatal danger.

Gefahr

Die Hochspannungsleitungen stellen für die Arbeit der Ausrüstung erforderliche Energie zur Verfügung. Direkter oder indirekter Kontakt (z. B. durch feuchte Gegenstände) mit Hochspannung und Wechselstromversorgung kann zu tödlichen Unfällen führen.

危险

高压电源为设备运行提供电能，直接或是间接（通过潮湿的物体）接触高压和 AC 交流电源输入，都会导致致命危险。

- During the installation of AC power supply facility, the local safety regulations must be followed. The personnel who install the AC facility must be qualified for high voltage and AC operations.
- Bei der Installation der Wechselstromversorgung sind die örtlichen Sicherheitsbestimmungen zu beachten. Das Personal muss besonders qualifiziert sein für das Arbeiten mit Hochspannung und Wechselstrom.
- 必须按照当地安全规定进行 AC 交流供电设备的安装。负责电源安装的人员必须是通过高压和电源操作专业培训的专业人员。
- Conducting articles, such as watch, hand chain, bracelet and ring are prohibited during the operation.

- Es ist nicht erlaubt während dieser Arbeiten leitende Gegenstände wie Uhren, Armbänder, Armreifen und Ringe am Körper zu tragen.
- 在操作中不能穿戴导电性的物品，如：手表，手链，手镯和项链等。
- When water is found in the rack, or the rack is damp, please immediately switch off the power supply.
- Sollte sich Wasser im Baugruppenträger befinden oder der Baugruppenträger feucht sein, ist die Energiezufuhr sofort zu unterbrechen und das System abzuschalten.
- 当有液体进入机架或机架有损坏时，请立即切断电源。
- When operation is performed in a damp environment, make sure that water is kept off the equipment.
- Muss in einem feuchten Umgebung gearbeitet werden, ist sicherzustellen, dass kein Wasser in die Ausrüstung dringen kann.
- 在潮湿环境下进行安装时，请避免液体进入设备。

Warning

Non-standard and improper high voltage operations may result in fire and electric shock. Therefore, AC cable bridging and wiring through a certain area must follow the local rules and regulations. The personnel who perform high voltage operations should be qualified for high voltage and AC operations.

Warnung

Die Nichtbeachtung der Sicherheitsvorschriften bei der Arbeit mit Hochspannung kann zu Feuer und elektrischem Schlag führen. Deshalb muss die Verlegung von Leitungen und Verbindungen den örtlichen Anforderungen und Sicherheitsvorschriften entsprechen. Arbeiten mit Hochspannung dürfen nur von qualifiziertem Fachpersonal durchgeführt werden.

警告

不规范和不正确的高压电源操作，都会导致失火和电击危险。因此，必须由通过高压和 AC 电源操作专业培训的专业人员按照当地电气安全规定配置线缆。

Power Cable Zuleitung 电缆

Note

Installation and removal of live power cable is prohibited strictly. Transient contact between the core of power cable and conductor may generate electric arc or spark or electric arc, which may lead to fire or eye injury.

Anmerkung

Das Entfernen und Anbringen von Zuleitungen ist strengstens verboten. Kurzschlüsse zwischen innerem und äußerem Leiter können Lichtbögen oder Funkenflug verursachen, was zu Feuer oder einer Augenverletzung führen kann.

说明

禁止安装和移动带电的线缆。因为导电体和带电的线缆，即使短暂接触，也会引起电火花或电弧，从而导致失火或是伤害眼睛。

- Before the power cable is installed or removed, the power switch must be turned off.
- Das System muss stets abgeschaltet werden, bevor die Zuleitung angebracht oder entfernt wird.
- 在安装、移动线缆之前，请切断电源。
- Before the power cable is connected, it must be confirmed that the power cable and label comply with the requirements of the actual installation.
- Überprüfen Sie vor dem Anbringen der Zuleitung immer, ob das von Ihnen verwendete Kabel den Anforderungen entspricht.
- 在进行线缆连接前，请确认线缆和线缆的标识与实际安装要求是一致的。

Note

For AC power supplied equipment, please use 0.75 mm^2 or 18 AWG minimum power supply cord.

Anmerkung

Für mit Wechselstrom betriebene Ausrüstung benutzen Sie bitte eine Mindest-0.75 mm^2 oder 18 AWG Zuleitung.

说明

AC 电源设备，请使用 0.75mm^2 或 18 AWG 电缆。

Thunderstorm Gewitter 防雷击

Danger

High voltage and AC operations or operations on a steel tower and a mast on a thunderstorm day are prohibited. In order to prevent the equipment from being damaged by lightning, proper grounding is required.

Gefahr

Arbeiten mit Hochspannung und Wechselstrom oder Arbeiten auf Stahltürmen und masten während eines Gewitters sind verboten. Um die Ausrüstung vor Beschädigung durch Blitzschlag zu schützen, ist eine ordnungsgemäße Erdung erforderlich.

危险

禁止在雷雨天进行高压电源和 AC 交流电源安装操作，对金属架和天线的操作也是不允许的。为保护设备免遭雷击破坏，设备应可靠接地。

Laser Laser 激光辐射

The laser hazard level of this equipment is Class 1.

Die von diesem Laser ausgehende Gefahr entspricht der Kategorie 1.

本设备的激光防护等级是 1 类。

Warning

When performing installation and maintenance operations of optical fibers, you should not stand close to, or look into the optical fiber outlet directly with unaided eyes.

Warnung

Während der Installation und Instandhaltung der optischen Fasern dürfen Sie nicht zu nahe am Ausgang der optischen Fasern stehen und nicht ohne Augenschutz in die optischen Fasern sehen.

警告

在安装和维护设备的光纤接口时，请不要把眼睛靠近或是直视这些光接口。

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